GOLDANALYTIX G-01-0012 Gold Testing Machine Instruction Manual

Contents

GOLDANALYTIX G-01-0012 Gold Testing Machine

Product Information

The CaratScreenPen is a device used for measuring the karat value of gold objects. It comes with a set of components including an LCD color display, an integrated calibration round made of 14-karat gold, a Cinch jack for connecting the measuring pen, a charging port, and a measurement scale with different karat ranges. The device provides results in the unit “K = Karat” and has a display for easy reading of measurements.

Product Usage Instructions

Preparing for Measurements / Using the Fiber Optic Pen

1. Make sure the device is charged.
2. Connect the measuring pen to the Cinch jack on the device.
3. Remove the cap from the pen’s tip.
4. Hold the pen’s tip against the gold object to be measured.

IMPORTANT INFORMATION: Follow the instructions carefully to ensure accurate measurements.

Measuring a 14 Karat Ring

1. Follow the steps for preparing measurements as mentioned above.
2. Place the pen’s tip on the 14-karat gold ring.

IMPORTANT INFORMATION: Ensure proper contact between the pen’s tip and the gold object for accurate results.

Result Evaluation and Interpretation

The device will display the measurement result in the black measurement range. Use the provided karat scale to interpret the result and determine the gold content percentage or promille value of the object.

Additional Stamps / Hallmarks

The device can also be used to identify other stamps or hallmarks on gold, such as those indicating gold plating or

different gold alloys.

Technical Specifications

- **Article Number**: G-01-0012, G-01-0012-ES, G-01-0012-FR
- **Dimensions without measuring pen (L x W x H)**: 15.8 x 7.2 x 3.1 cm
- **Dimensions with packaging (L x W x H)**: 29.5 x 26.2 x 11.0 cm
- **Weight without measuring pen**: 170 g
- **Weight with measuring pen**: 265 g
- **Weight with packaging**: 1180 g
- **Power:** 5 W
- **Voltage:** 5 V
- **Battery Type**: Li-Polymer Battery
- **Battery Capacity**: 1200 mAh
- **Plug Type**: 5.5 x 2.5 mm DC Plug

Warranty and Support
For warranty and support, visit the website **www.gold-analytix.de** or contact **gold-analytix@marawe.de** via email.

Recycling and Disposal
Please follow local regulations for recycling and disposing of the device.

Introduction

Congratulations on your purchase of the Goldanalytix CaratScreenPen. The Goldanalytix CaratScreenPen is an easy-to-use and non-destructive testing device for the determination of purity/carat number of gold alloy surfaces in jewellery and other precious metal objects.
Goldanalytix, established in 2012, is the leading provider of precious metal testing methods in Germany. With the CaratScreenPen, we offer a testing device, which establishes the fine content on the surface of gold jewellery, scrap gold and other auriferous material by means of an electrochemical measurement method. In addition, it can be determined whether platinum, palladium or rhodium-plated surfaces are present. The measurement method is based on the fact the pen probe creates a so-called “galvanic cell” when in contact with the testing object on the measuring surface, and through the resulting voltage drop the corresponding carat number is determined.

By the way: On our homepage at **www.gold-analytix.com** you will always find the latest version of the instruction manual, so that you can keep up to date with new types of forgery and findings around precious metal testing.
Important note on the optics of the probe pen and measuring **surface:** Every probe pen is tested for quality in connection with the device, which leads to a slight discoloration of the probe tip. This is not a lack in quality, but only a guarantee that your device was checked before delivery. Due to technical production reasons, the measuring surface can show creasing, slight scratches or traces which cannot be avoided. This does not affect the measurement in any way.

Safety Instructions

IMPORTANT: Please read this instruction manual carefully before using the CaratScreenPen for the first time. This is for your own safety and to ensure proper operation of the device. Keep the instruction manual in a safe and easily accessible place and, if necessary, pass it on to subsequent users. When using the CaratScreenPen, please follow the safety instructions.

Definition of signal words and warning symbols
Safety instructions are marked with signal words and warning symbols. Disregarding the safety instructions can lead to personal danger, damage, and malfunction of the device, as well as incorrect results.

 **CAUTION!**
Indicates a low-risk hazard which, if not avoided, could result in minor or moderate injury and damage to the device or property.

 **Warning symbols**
General warning: This warning symbol is intended to alert the user to potential hazards. All instructions following this warning symbol must be followed to avoid possible injury or damage to the device.

Product-specific safety instructions

Intended use

 **CAUTION**
Do not use the device for any purpose other than the intended use described in this instruction manual.

This device is designed for the use in precious metals testing and is suitable for determining the superficial carat number. Goldanalytix is not liable for damage resulting from improper use.

Device compatibility
CAUTION! Only use the supplied charger. The use of inferior or incompatible chargers may result in malfunction, damage to the battery and internal electronics, and/or injury.

Repair and modifications

 **CAUTION!** To avoid damage to the device and/or personal injury, do not dismantle the device or attempt any modifications or repairs. If you encounter any problems with the CaratScreenPen, please contact Goldanalytix (for contact details, see page 32).

- The device does not contain any parts that can be maintained, repaired or replaced by the user.
- Do not open, modify, or rebuild the device (including the probe pen). This may invalidate the warranty.
- Repairs by unauthorized persons may endanger the user. Repairs may only be carried out by Goldanalytix itself.

Operating conditions

- Never use the device near explosive gases, vapors, dust or in a damp/wet environment. Protect the device from moisture and humidity. Make sure that no liquid gets inside the device and wipe off spilled liquids immediately.
- Ideally, only operate the device at room temperature. Avoid extreme temperatures and temperature changes.
- The test object must be dry. Remove any moisture or wetness prior to measurement. The test object must be

free of possible oxide layers and contamination such as fingerprints, grease residues or other soiling. Remove such residues with the enclosed glass fibre pen and a damp cloth prior to measurement.

Safety instructions for the electrolyte solution

CAUTION! The electrolyte solution contained in the probe pen causes skin irritation, as well as severe eye irritation. Read the following safety instructions carefully. For more information, request the Safety Data Sheet of the electrolyte solution from Goldanalytix.

- Due to transport, it is possible that some electrolyte solution my leak out of the probe pen before the first use or that a larger amount of liquid leaks out during the measurement. Simply clean the probe pen with a dry paper towel and dab the probe tip carefully several times to eliminate the liquid leakage.
- Close the probe pen with the cap after each use. If the probe pen is stored open for a longer period of time, the probe tip may dry out and the electrolyte solution may crystallize. This impairs the functionality of the probe pen and the probe pen must be replaced.
- If the electrolyte solution comes into contact with your eyes, rinse your eyes gently with water for a few minutes and, if possible, remove any contact lenses. If the eye irritation persists, seek medical advice and have the label at hand.
- Keep the electrolyte solution out of the reach of children.

Precautions regarding the lithium battery

 **CAUTION**
Read the precautions regarding lithium batteries carefully. Neglecting to follow the instructions may result in fire, burns, and other hazards or injuries. + Only use the charger supplied by Goldanalytix to charge the device.

- If possible, charge the device on non-combustible surfaces and do not leave the device unattended while charging.
- Protect the device from heat (e.g. from continuous sunlight, proximity to hot stoves or microwaves), as well as from water and moisture. There is a risk of explosion if the battery overheats.
- Follow the applicable transport instructions for lithium batteries.
- Before disposing of the device, inform yourself about the applicable guidelines and regulations and follow them. More information on the disposal of the device can be found in Chapter 8: Recycling and Disposal.

Maintenance
Clean the measuring surface regularly with a damp paper towel. To clean the probe tip and to remove any whitish salt crystals that may be present due to crystallization of the electrolyte solution, get a dry paper towel and rub it gently over the tip. Do not polish the measuring surface with the glass fibre pen!

Conformity

The CaratScreenPen from Goldanalytix complies with the relevant European Directives regarding health, safety and environmental protection.

Scope of supply
Your CaratScreenPen set includes the following components

- CaratScreenPen
- Probe pen
- Cinch cable
- Charger
- Glass fibre pen
- Instruction manual Carrying case with inlay Shipping carton

Before initial start-up, please check that the components mentioned above are included in the scope of delivery of the CaratScreenPen set and that there is no obvious transport damage. In case of any defects, please contact Goldanalytix immediately (for contact details, see page 32).

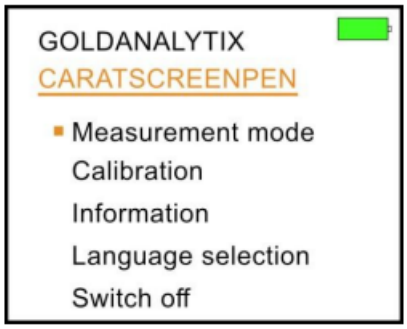
Operation and Display Elements

#	Description
1	LCD color display
2	Gold-plated measuring surface
3	Integrated calibration piece made of 14 carat gold
4	Cinch-socket for pen probe plug-in
5	Charging socket
6	Control knob for operation of the device
7	Result shown in the unit „K“ = carat
8	Display of the possible gold content in % gold (Au= chem. element symbol for gold)
9	Measurement scale with the different carat ranges
10	Cinch-socket at the probe pen
11	Probe tip
12	Sealing cap

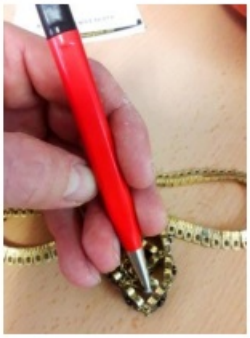
Starting and Operating the DeviceStarting the device

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
	The main menu offers you five options: • Measurement mode • Calibration • Information • Language Selection • Switch off 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.

Preparing measurements / Using the glass fibre pen

Illustration	Description
	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.

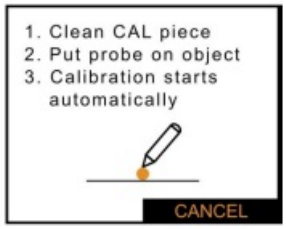
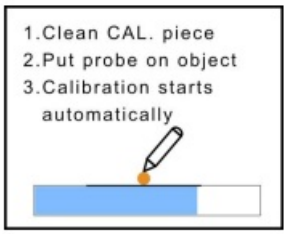
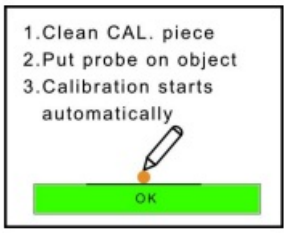
IMPORTANT INFORMATION

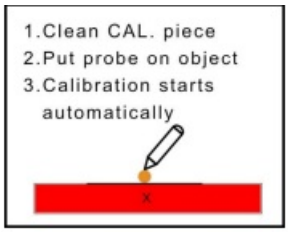
Many gold alloys, especially objects with a lower carat number, are covered with a more or less strong oxide layer after a certain amount of time, which shows itself in the form of e.g. greyish, brownish or black deposits on the surface. To ensure uniform and objective measurement conditions, you must 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!

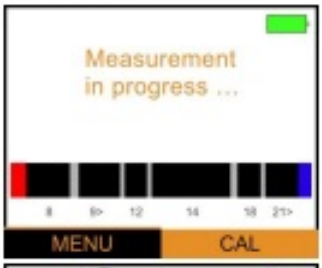
Display	Description
  	You can access the calibration mode either via the main menu (select “Calibration”) or in the measuring mode via “CAL”. Before each use and after each restart, the device must be calibrated w ith the integrated calibration piece ❸ made of 14 carat (585) red gold. Pre-treatment of the calibration piece with the glass fibre pen is i mportant to obtain an optimal result. Oxide layers and other imp urities could falsify the calibration and lead in the following to inc orrect results. Therefore, clean the calibration piece with the gla ss fibre pen before each calibration. It is also advisable to wipe t he 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. Make sure that the probe pen is inserted correctly and all the wa y into the socket ❹. Now you can place the probe tip as verticall y as possible on the calibration piece. Calibration starts automat ically (figure on the upper left). Keep the tip on the calibration pi ece until the blue-gray progress bar has run through. If calibration is successful, a green bar appears with the output “O K” (figure on the lower left).

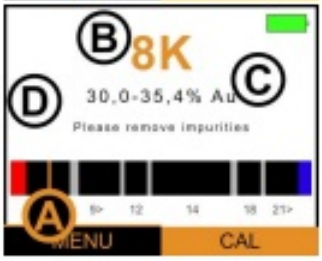
	If the calibration should fail, a red bar with an “X” appears (figur e on the left). In this case, please clean the calibration piece aga in and repeat the calibration. Should the calibration fail again, re start the device and try another calibration process. If you have a second probe pen, try the calibration with this one. If those me asures do not lead to success, please contact us.

Performing measurements

Display	Description

Measurement of an 18 K ring:





For testing your objects, select the “Measurement mode”. The “ READY” display shows you that the device is ready for measure ment. Please not the important information below before taking t he first measurement.

If the device does not show any reaction when you put on the pr obe pen, it is either a connection error (check the cinch cable!) o r a varnished object.

To perform a measurement, place the testing object on the gold en measuring surface ②. It is extremely important that there is a n electrical contact between the gold surface and the testing obj ect: Therefore always touch with the metal and not, for example, with stones or other non- conductive materials. With the other h and, place the probe pen on another conductive part of the testi ng object. Press lightly and the measurement will start automati cally – you will see “Measurement in progress…” (figure on the l eft). Wait until the measurement is completed.

The result is output in the form of 3 indications (**figure on the lo wer le**ft): The yellow-orange cursor

(A) flashes on the measurement scale in the carat range of the t est 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 screen s, another line with additional information (**D**) is shown.

	After the measurement, the result remains for a few seconds. T hen the screen display changes back to “READY”. However, yo u do not have to wait, but can directly test the next object once t he result is logged in. In the lower section of the display, you can either return to the m ain menu by pushing the control knob or switch directly to calibr ation via “CAL”.

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.

Please note the following special cases. Detailed information on the individual special cases can be found on our website at **www.gold-analytix.com/caratscreenpen**.

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 cased are objects which below their surface are made of a gold ally 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.

For white gold objects, the technique of rhodium plating is often used. This involves applying a very thin layer of the very expensive precious metal rhodium to the finished piece of jewellery. When the object is measured, the CaratScreenPen will output the measurement result in the blue range of platinum/palladium/rhodium. Treat the object with the glass fibre pen to remove the rhodium layer and get the correct measurement result. However, be sure to note that for objects made of platinum (950, 999) or palladium (950), the correct measurement results are in the blue range.

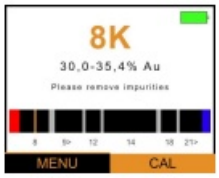
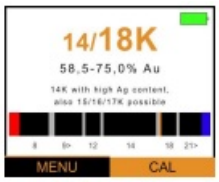
Jewellery pieces may be coated with a protective lacquer to protect them from environmental influences. Should you wish to measure an object with a protective lacquer coating, the device will not show any reaction when the probe pen is placed on the surface. This is due to the non-conductive protective varnish, and therefore the device will not receive an electrical signal. Remove the thin layer of protective varnish by lightly polishing with the glass fibre pen and perform the measurement on the polished area.

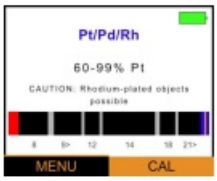
Changing the language

Display	Description
Sprache/Language: • Deutsch English	Select “language selection” in the main menu and push the knob to choose the desired language. You will then be redirected to the main menu automatically.

Evaluation and Interpretation of the Results

In the following, you will find information on the interpretation of the measurement results. The CaratScreenPen measures the gold content on the surface in a reliable way and with high accuracy within the physical possibilities. However, depending on the alloy composition, other precious metals that might distort the measurement result may also be present. Therefore, in the following section you will find some examples in order to explain the different result screens. The most important step, however, is to classify the respective piece of jewellery by checking the hallmark. This is because in most cases, you will want to verify whether an object actually corresponds to the hallmarked gold content.

Display	Description
Black Measurement Range 	If the cursor flashes in a black measurement range, it is very lik ely that the object has a gold content in the indicated range. For example, the result “8K” indicates that the object has a surface gold content between 30.0 and 35.4%. As a rule, the CaratScre enPen indicates the range of the carat number 2.1% in the mea surement result. **Exception:** 8 K = 333‰ or 33.3% gold content .
Transition Measurement Range 	If the cursor flashes in a light gray measurement range (so-calle d transition range), the gold content of the object cannot be clea rly assigned. In this case, for example, the result in the figure on the left indicates that an object with a 14 carat hallmark could ha ve a high silver content and therefore reach into the 18 carat ran ge, although the gold content actually corresponds to 14 carat. I n such a case, one should rely on the hallmark or calculate with the lower carat number as a precaution. In rare cases, the partic ular composition of the object causes an alloy with a high carat number to be on the border of the next lower carat range.
Counterfeits and low gold contents 	If the cursor flashes in the left, red range with the output “NO G OLD / 0 – max. 30% Au“, the gold content of the object is below the values typically used for gold jewellery. Low carat alloys are summarized in the range of 0-30% gold content. In the majority of these cases it is a material of low value, but also 6 or 7 K allo ys are possible. If an object with a 333 hallmark is on the left edge of the 8K ran ge, you should be careful and polish a spot on the object with th e glass fibre pen and measure again. Please also not the import ant information regarding jewellery without a (legible) hallmark.

	Beware of the following hallmarks “plated” / “double” / “american er” / “alpaca/alpaca”: These are only galvanically applied gold la yers on non- precious materials or so-called nickel silver. Beware of so-called **“Autobahngold”:** These are low-value jew ellery objects made of brass or stainless steel with or without thi n gold plating, which are mainly offered at rest stops and gas st ations. E.g. jewellery with hallmarks in the format “18K-0.750”, whereas the real hallmark is in the format “18K-750”. Please inform yourself about country-specific hallmarks, seals o f quality and minting on the Internet.
Platinum, Palladium or Rhodium- plated o bjects 	If the cursor flashes in the right, blue range, it is an object made of platinum or palladium or a rhodium-plated piece of jewellery. Please not the important information in the previous chapter. **Ca ution:** In some cases, V2A stainless steel is also in this range. Please note that this value range applies to the respective pure forms and high-alloyed jewellery alloys. For instance, the freque ntly used palladium 500 lies in the range of 12-14 carat gold.

The measurement result of the CaratScreenPen is influenced not only by the gold content but also by other metals, especially silver and palladium. Thus, a high content of silver or palladium leads to a sometimes significantly higher result (output in the adjacent transition range or in the range of the next higher carat number) than the hallmarking of the object would suggest. This is because 14 K or 585 simply mean that the object has a gold content of 585 ‰. However, the composition of the other 415 ‰ depends on numerous factors. The desired color plays an important role: e.g. yellow gold, red gold, or white gold. The more reddish a piece of jewellery (rosé gold or red gold), the more copper is in the alloy. In white gold, on the other hand, the proportion of silver, nickel, palladium, or zinc is significantly increased.

Information for alloys with a gold content of 875‰ / 21 K or more
Please keep in mind that the CaratScreenPen should ideally only be used up to 21 K due to the measurement method used and the physical and chemical properties of the gold alloys. The target values for alloys from approx. 875 gold / 21 K move very close together, whereas you can differentiate well in the lower range. Therefore, the high carat range is also summarized as 21-24 K in the CaratScreenPen. For objects above 21 K, mostly small coins and bars, we recommend the additional use of another testing method: the determination of the electrical conductivity with our Goldanalytix GoldScreenPen. Further information on the GoldScreenPen and the electrical conductivity measurement method can be found online at
www.gold-analytix.com/goldcreenpen.

Warranty and Support

Do you need more information about our devices, support in using the CaratScreenPen or the customer service? Feel free to contact us through one of the following channels

- **Homepage:** **www.gold-analytix.com**
- **E-Mail**: **gold-analytix@marawe.eu**
- **Phone:** +49 941 29020439

Our high quality precious metal testers are designed for a long lifetime. However, if any problems should occur with a device, it is good to know that we offer a legal warranty of 2 years. The warranty period starts with the receipt of the product. In case of a warranty claim, after repair or replacement of the device, the warranty period

starts again with the receipt of the product.

IMPORTANT: The warranty applies only to devices that have been properly used as described in this instruction manual and have not been misused, repaired by unauthorized persons, or modified.
The CaratScreenPen is a good tool for verifying the authenticity of precious metals – however, in the end you are responsible for your own transactions. We assume no liability for any possible financial losses that may result from the use of the CaratScreenPen.

Recycling and Disposal
The CaratScreenPen is marked in accordance with the European Directive 2012/19/EU on Waste Electrical and Electronic Equipment (WEEE). This symbol indicates that this electrical or electronic device must not be disposed of with normal household waste at the end of its lifetime, but must be taken for separate collection by the end user. Please follow your country's rules for the separate collection of electrical and electronic equipment. For more information on recycling, please contact your local authority.
The CaratScreenPen is marked in accordance with the European Directive 2012/19/EC on batteries and accumulators. This symbol indicates that this device contains a built-in battery or accumulator which must not be disposed of with normal household waste at the end of its lifetime, but must be taken for separate collection by the end user. Please follow your country's rules for the separate collection of batteries and accumulators. For more information on recycling, please contact your local authority.

The following batteries or accumulators can be found in this electrical device : Rechargeable (secondary) battery [glued-in accumulator] with the chemical system [Li-Ion-Polymer]. Instructions for safe **removal:** This accumulator can NOT be removed from the device by the end user, but can be replaced by Goldanalytix in the course of repair.

Thank you for your contribution to the protection of the environment!

Technical Data

- Article number
- G-01-0012, G-01-0012-ES, G-01-0012-FR
- Dimensions without probe pen (L x W x H)
- 15.8 x 7.2 x 3.1 cm
- Dimensions incl. packaging (L x W x H)
- 29.5 x 26.2 x 11.0 cm
- Weight without probe pen
- 170 g
- Weight with probe pen
- 265 g
- Weight incl. packaging
- 1180 g
- Power
- 5 W
- Voltage
- 5 V
- Battery type
- Li-Polymer Battery 1200 mAh 3.7 V
- Plug type
- 5.5 x 2.5 mm DC plug

Documents / Resources

	GOLDANALYTIX G-01-0012 Gold Testing Machine [pdf] Instruction Manual G-01-0012, G-01-0012-ES, G-01-0012-FR, G-01-0012 Gold Testing Machine, Gold Testing Machine, Testing Machine, Machine

References

- Das neue Batteriegesetz (BattG)
- Startseite - Das neue Elektrogesetz (ElektroG, WEEE) 2023
- Gold tester, gold testing machine and precious metal tester | Goldanalytix.com - Gold Analyzer
- CaratScreenPen | Goldanalytix.com - Gold Analyzer
- Goldanalytix - Goldprüfgeräte & Gold Tester - Echtes Gold erkennen & Silber testen | Goldanalytix.de-Online-Shop
- CaratScreenPen | Goldanalytix.de-Online-Shop
- Entsorgung von Altgeräten Goldanalytix | Goldanalytix.de-Online-Shop
- GoldScreenPen | Goldanalytix.de-Online-Shop
- Goldanalytix Shop - Pruebas de metales preciosos
- CaratScreenPen | Goldanalytix Shop - Pruebas de metales preciosos
- Goldanalytix Shop - Testeurs de métaux précieux
- CaratScreenPen | Goldanalytix Shop - Testeurs de métaux précieux
- GoldScreenPen | Goldanalytix Shop - Testeurs de métaux précieux
- Tifoo - Selber galvanisieren, vergolden, brünieren & eloxieren | Tifoo Shop