



MAGNETIC SCREEN SCALE

THE MAGNETIC SCALE BY GOLDANALYTIX

Instruction Manual

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1. About Goldanalytix / Contact

Goldanalytix, established in 2010, is the leading provider of precious metal testing methods in Germany. In our team we are working on the development of safe and reliable testing methods for each kind of precious metal. Thanks to the close synergy of analytics know-how and device development, we are always up to date. Due to continuous improvements we achieve and guarantee highest standards of quality.

Do you need support with product data, service assistance or 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

We are looking forward to your contact!

2. Introduction

Congratulations on your purchase of the Goldanalytix MagneticScreenScale. The Goldanalytix MagneticScreenScale tests the authenticity of different precious metals fast and without destruction. The magnetic scales are suited for quick detecting of tungsten and tungsten alloy (T/TA) inclusions in gold ingots or gold coins (minimum T or TA content of >40-50%). Furthermore, magnetic scales are well suited for discovering tantalum falsifications of .900 or .916 gold coins. It is also possible to test the correct magnetic qualities of coins, jewellery and ingots of silver, platinum or palladium with the Goldanalytix MagneticScreenScale.

In general, you can differentiate between diamagnetic and para- or ferromagnetic metal species. The result is revealed after a few seconds as difference in magnetic weight. A big advantage is the pervading method, i.e. the inner parts of the testing objects are examined (until a certain thickness), not only their surface. You can also test the objects within their plastic films or blisters. Thanks to the highly efficient accumulator battery, the magnetic scale allows you to test precious metal on-site and on the way.

Please read these operating instructions carefully prior to the first use in order to use the MagneticScreenScale properly.

Please note: The development of improved counterfeits is the goal of each forger. In order to stay up to date on this dynamic field we recommend you to inform yourself on our website at www.gold-analytix.com/magnetic-scale/ under "Application info". There you can find the most recent version of the instruction manual.

3. Scope of Supply

Your MagneticScreenScale set is delivered with the following elements:



Precision Scale
Charger
Magnetic Measuring Head
Rod magnet for pre-tests
Antistatic spray
Graphite plate as reference material
Instruction manual
Suitcase

In the unlikely event that something is damaged or missing please contact Goldanalytix immediately (for contact data see page 2).

4. Measurement Principle

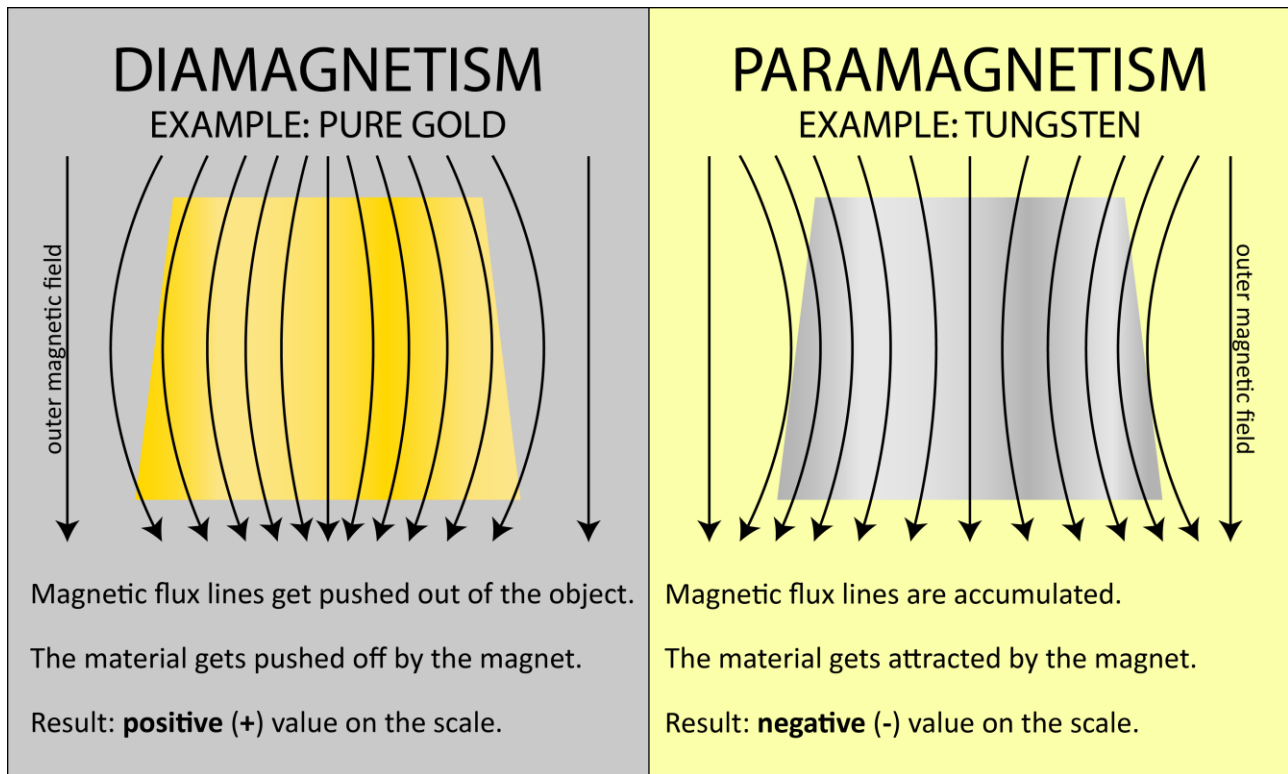
The measurement principle utilizes the different magnetic properties of precious metals like gold or silver in comparison to the frequently used metals of falsifications like tungsten, tantalum or molybdenum in a strong magnetic field. While gold and silver show diamagnetic properties (which leads to a weak repulsion of the magnet), tungsten, tantalum and molybdenum feature paramagnetic properties leading to weak attraction of the magnet.

This can be used in order to identify falsifications because of their paramagnetic properties leading to a negative sign on the scale. Due to the strong magnetic field of the measuring head the penetration depth is up to 2.5 mm (our experience with own test series).

Diamagnetism, paramagnetism and ferromagnetism assign different magnetic properties of the material. While diamagnetism and paramagnetism are not easily observable in the daily life, ferromagnetism is well-known.

In general, each material features diamagnetic properties, but these are overlapped by paramagnetic or ferromagnetic properties. Based on this, the separation can be done with regard to their magnetizability.

Ferromagnetic substances are **strongly attracted** by a magnet. At ambient temperatures metals like iron, nickel, and cobalt are ferromagnetic. Ferromagnetism is about 1000 times stronger than dia- and paramagnetism.



In contrast to that, **paramagnetic substances** are **weakly attracted**. Consequently, a strong magnetic field is necessary in order to gain a certain effect.

Diamagnetic substances are **weakly rejected** by a magnet. Strongly diamagnetic materials e.g. are pyrolytic graphite and bismuth. They reject the magnet extraordinary strong leading to high positive values on the scale.

The difference in between dia- and paramagnetism is the basis of the authenticity test of precious metals with the help of the MagneticScreenScale. Pure silver and pure gold as well as their copper alloys cause a positive value due to the rejection of the measuring head. In case of a paramagnetic material a negative value will appear because of attraction.

Important to know: Ferromagnetic additives complicate the measurement with the MagneticScreenScale because even tiny amounts can lead to misinterpretation of the result (see chapter 9: "Valuation of the measurement results").

5. Handling of Strong Magnets

The MagneticScreenScale exhibits strong magnetic fields. Please be aware that no ferromagnetic / magnetic materials, electromagnets, magnetizable materials (hard disks, credit cards, mechanical watches, hearing aids) or other electronic devices are next to the measuring head of the scale.




Dangers

- Strong magnets may cause bruises.
- Magnets can split by clashing them.
- Mechanical work on magnets can lead to fire hazard.
- Magnets are able to interfere with heart pacemakers and magnetic hard disks.
- Magnets can be a health risk when in contact with food or drinking water.
- Magnets are heavily hazardous to health when swallowed and can also lead to death.

Security Instructions

- Persons with a heart pacemaker should keep sufficient distance to magnets.
- Magnets are not made for children's hands.
- Please keep magnetic hard disks and other electronic devices in a sufficient distance.
- Do not bring magnets in contact with food.
- Avoid mechanical work on magnets (e.g. drilling or sawing).
- Avoid loose magnetic items next to the magnet.
- Do not bring magnets next to open fire.
- Transport of magnets, especially by air freight, needs the fulfillment of certain regulations. These are also valid for included magnets. Please get informed about the valid regulations.

6. Assembly of the MagneticScreenScale

Step	Description	
1	<p>Set the scale up on a plain and solid surface.</p> <p>IMPORTANT: Please switch the scale on <i>after</i> finishing steps 2 & 3.</p>	
2	<p>Screw the measuring head carefully into the corresponding threads. Screw it not too firmly in order to avoid destruction of the measurement cell of the scale, but be aware that the measuring head is fixed tightly on the scales disk. The scales disk has to be beneath the measuring head!</p> <p>IMPORTANT: The scale is set up in the manner, that 0.000 is shown <i>after</i> installing the measuring head. Otherwise you will get the notice "--- LH ---" on the display.</p>	
3	<p>Place the Perspex hood on the scale like it is shown on the picture. The measuring head should not touch the hood after putting it on. The measurement principle is based on a certain, minimal distance in between the measuring head and the Perspex hood. In case of a contact, you may not have installed the measuring head properly as described in step 2.</p>	

7. Preparing a Measurement

In order to avoid damage of the scales as well as inaccuracy during the measurement, we recommend taking the following steps into account:

1. Commissioning and Choice of Location

IMPORTANT: The scales only work after installing the measuring head. In case of not being screwed in you will get the error message "---LH---".

Please switch the scales on 5-10 min prior to the first measurement in order to guarantee highest precision. In that way the scales give you the best results because it needs assimilation of the temperature. Please be also aware of a calm location which is free from vibrations. The result of the scales is dramatically disturbed by vibrations, draft and temperature fluctuations. Please assure that no ferromagnetic tools or electronic devices are next to the scale (minimum distance >30 cm)! Do not put the testing object on the scales with the hand on which you wear your watch.

2. Reference Measurements

In order to assure proper measurement conditions, the suitcase also contains a graphite plate as reference. Put the plate on the target area prior to each measurement series (see chapter 8). The value should be in the range of +0.200 to +0.400 g. In case of differing significantly please be aware of the following hints.

3. Temperature

The ideal temperature for the measurement is in the range of 20 to 25 °C. It is also working in the range of 15 °C to 35 °C. Nevertheless, you should avoid very high or low temperatures, because of the magnetic force being temperature dependent. Please also ensure that the temperature stays constant during the measurement! Upon heating the magnet above 80 °C, it will lose the magnetization permanently!

4. Testing object

The testing object has to be dry and clean, but can be wrapped in standard blisters, foils and capsules.

Please be aware, that the plastic of capsules etc. also has diamagnetic properties (leading to a slightly positive value on the scale). Consequently, capsules which are too thick might falsify the result. By using common packaging disturbing deviations ought not to be a problem. Nevertheless, our recommendation is to measure the objects without packaging.

5. Pre-Test with rod magnet

Please ensure that no ferromagnetic material (iron, nickel or cobalt) is next to the **strong magnet**.

That's why you should check the testing object whether it contains ferromagnetic additives like iron, nickel or cobalt with the small rod magnet.

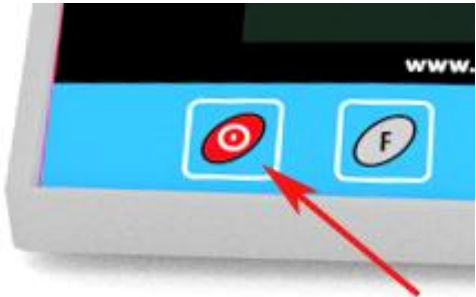


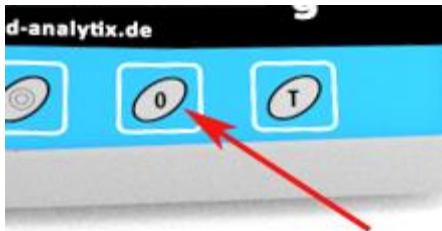
In case of not applying this hint, the measuring head might be damaged or you even get hurt! (see chapter 5: Handling of strong magnets)

6. Electrostatic charge of the plastic parts

Please avoid electrostatic charge of the Perspex hood or capsules while dealing with the MagneticScreenScale. Due to polymers are able to get electrostatically charged leading to an interaction with the magnetic field, the prevention of the charge is highly recommended.

Please keep in mind that rubber gloves or similar materials might lead to electrostatic charge of the Perspex hood or the capsules. However, when any part got charged please use the antistatic spray in order to get rid of the charging. It is a good practice to cover the surface with the spray and wipe it off with a paper tissue prior to each measurement. Please have a look on the safety hints on the spray tin. In case of doubt please check if the graphite plate is in the range of +0.200 g to +0.400 g.

8. Performing a Measurement

Step	Description	
1	<p>After installing the scales:</p> <p>Switch them on and wait until 0.000 is displayed. Please ensure that the measuring head has already been screwed in (see chapter 6). Now you can check if the graphite plate is in the range of 0.200 g to 0.400 g (see p. 7, point 2).</p>	
2	<p>After removing the reference plate, push the "TARE" button "-->0<--" so that 0.000 is shown. Now you can place your testing object (here: a gold bar) on the target area (in the middle of the Perspex hood). After reaching a stable measured value you can fix the result. Usually, removal of blisters, capsules or foils is not necessary (see p. 8, point 6).</p>	
3	<p>If the display shows a negative value for gold, it might be a falsification with high chance. Typical falsifications contain a tungsten core (see the following chapter „Valuation of the measurement results“).</p>	
4	<p>Remove the object from the scale and push "-->0<--" for taring, that 0.000 is displayed. Now you can continue with the next object.</p>	

9. Valuation of the Measurement Results

Please consider the following measures and hints in order to avoid misinterpretation of the result:

1. Measurable Thickness

Please be aware that paramagnetism, for example, is more pronounced than the diamagnetism of gold. In this regard, a tungsten core can be identified beneath a gold layer with a thickness of 2.5 mm (however, the mass of tungsten has to be 40-50% of the total mass). Therefore, the MagneticScreenScale is a secure and reliable detector for paramagnetic inclusions in gold or silver for common bars and coins up to 100 g.

An exemplified consideration should illustrate that: Typical dimensions of a 100 g bar are 50 mm × 29 mm × 4 mm. This means that a forger has to include only a very thin layer of tungsten in order to not be detected. This might not be profitable for a forger.

Above 250 g, the situation is different. In this case, bars often feature a thickness of up to 9 mm. If you consider that the penetration depth ideally is about 2.5 mm (from each side; together 5 mm), a forger still could include 4 mm of cheap tungsten.

This does not mean that a gold cover of such thickness is common. Mainly, the identified falsifications of e.g. 250 g bars exhibited a gold layer of less than 1 mm which would have been easily identified by the Goldanalytix MagneticScreenScale.

Nevertheless, we ask you to please follow the aforementioned instructions regarding the dimensions by selecting the testing objects.

2. Pure Materials

The measured values of pure materials behave as shown in the following table:

Diamagnet	Paramagnet	Ferromagnet
Positive Sign (+) at Measurement	Negative Sign (-) at Measurement	Highly negative Sign (-) at Measurement
Bismuth	Molybdenum	Iron
Beryllium	Tungsten	Nickel
Carbon	Magnesium	Cobalt
Tellurium	Aluminum	
Tin	Tantalum	
Zinc	Platinum	
Silver	Rhodium	
Gold	Titanium	
Lead	Palladium	
Copper	Manganese	

That means that, for example, a silver or gold coin usually gives a positive value. Other materials like pure copper or lead show a similar behavior. Bismuth is the metal featuring the highest diamagnetic behavior and consequently gives the highest positive value with respect to an identical geometry.

This might lead to a situation in which a falsification with a bismuth coverage containing a paramagnetic core does not lead to a negative value on the MagneticScreenScale. However, those falsifications are expensive to produce and the relatively low density of bismuth would lead to strong deviations of the dimensions and the mass compared to gold, platinum or palladium.

3. Paramagnetic Cores

In case of the presence of ferromagnetic impurities within the paramagnetic core (e.g. a tungsten copper alloy with trace amounts of iron) inside silver- or gold objects, the scale will display significantly negative values of -1 g to -6 g.

Please keep in mind that forgers usually do not use tungsten alloys with iron or nickel impurities so that the values on the scale might be much lower.

The following example should illustrate that:

A measurement series with brass plates and a highly pure tungsten copper piece should illustrate the reach of the magnetic measurements.

We placed a 30 mm × 5 mm, 99.95 % pure tungsten copper plate (80/20 alloy), which is a **paramagnetic material** often used for fakes of Krugerrand or American Eagle coins, on the MagneticScreenScale. The measured value was -0.063 g.

Afterwards, a **diamagnetic** brass disk with a thickness of approx. 0.4 mm and a diameter of 10 cm

was placed beneath the tungsten copper piece. This imitated the inclusion of tungsten copper in gold or gold alloys. Up to 5 of those brass disks (total thickness of 2.0 mm) a negative value was identified on the display. The sixth disk (total thickness of 2.4 mm) lead to a slightly positive value (0.010 g).

However, this was also an indicator for a falsification because the brass amount (comparable to .916 gold alloys) without tungsten copper should give a value of +0.040 g. In case of even thicker layers the values will become more positive which in turn would no more be identifying because the distance of the tungsten core to the magnet also increases.

4. Ferromagnetic Impurities

Some of the alloyed gold coins (especially the old ones) like Vreneli, Latin Monetary Union, Austrian Kroner (.900 alloy), American Eagle (some older years), Krugerrand, UK Gold Britannia (years before 2012, .916 alloys), other alloyed and especially older gold coins can contain (but do not need to!) tiny amounts of ferromagnetic substances like nickel, iron or cobalt. This may lead to that those coins or basically objects made from those materials give a negative value on the MagneticScreenScale contrary to the expectations. The reason is that (as already described above) ferromagnetic material is strongly attracted by a magnet. That means that even traces of these elements can lead to negative values. Please be aware of this hint when interpreting the result.

IMPORTANT NOTE: Additives of nickel are possible for pure gold and pure silver coins, however, it's quite unusual for common coins. It is therefore necessary to pay attention if negative values are displayed. In case of values below -0.050 g, something must be wrong and has to be double checked. An exceptional case is the Australian Koala silver coin. It seems to contain tiny amounts of ferromagnetic materials. Hence, the 1 oz Australian Koala silver coin was the only coin we observed during our investigations giving a negative value on the scale (despite it is genuine). The fineness of most of the silver coins is "only" 999.0 per mille instead of 999.9 per mille so that the remaining ten thousandth might contain ferromagnetic material. Please keep this in mind during the measurement.

5. Ferromagnetic Materials

In case of being made from ferromagnetic material, containing ferromagnetic alloys components or higher portions of ferromagnetic material you should expect strongly negative values up to the limit of the scale (in that case the value is no more displayed). Please test your object prior to the measurement with the help of the provided small rod magnet, if it contains ferromagnetic material leading to attraction of the magnet. Don't place such objects on the Perspex cover, as you might get hurt. Besides, the pre-test avoids that the measuring head is lifted out of the cone of the scale, which in turn leads to damage of the scale.

6. Further precious metals and combinations of materials

In addition to gold, silver, platinum and palladium, you can also test for foreign metal inclusions with the MagneticScreenScale. Please consider that the fake material has to feature magnetic

properties contrary to the corresponding precious metals in order to be identified by the magnetic scale.

For example, gold and silver are weak diamagnets (in comparison to metals like bismuth, beryllium or antimony). However, viewed relatively, palladium as well as platinum is a strong paramagnet. That means that a bismuth core within palladium could be detected, whereas a titanium core could not. The reason is that titanium also exhibits strong paramagnetic properties (see the following table and figure). The dimensions of the corresponding coin or bar would of course differ significantly, because the density of titanium is much lower than palladium (4.50 g/cm³ vs. 11.99 g/cm³). Hence, the test of the weight and the dimensions are inevitable during the testing process.

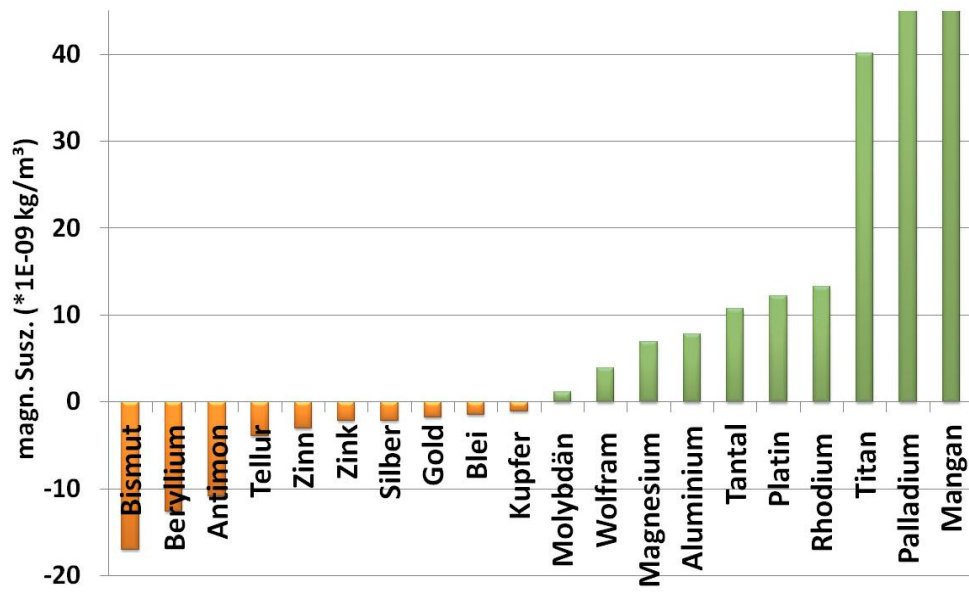
The following table and figure give an overview of the magnetic properties and the corresponding specification (given as „magnetic susceptibility“ of the mass). Having this overview in hand, you are able to judge which kind of falsifications can be identified in a realistic manner. Please take the susceptibility as a proportional factor for the amplitude to the corresponding direction (negative or positive) on the MagneticScreenScale.

Please do not get confused with the signs - a paramagnet gives a negative value on the scale (attraction) whereas a diamagnet gives a positive one (rejection). For example, a random piece of bismuth will show a higher positive value than a piece of copper with identical geometry.

7. Selected dia- and paramagnetic metals

The following table and figure give an overview of different magnetic properties of metals and their strength. The so called magnetic susceptibility is given in 10⁻⁹ m³/kg:

Diamagnets	Magn. susceptibility	Paramagnets	Magn. susceptibility
Bismuth	-17.00	Molybdenum	1.17
Beryllium	-12.60	Tungsten	3.90
Antimony	-10.90	Magnesium	6.90
Tellurium	-3.90	Aluminum	7.80
Tin	-3.10	Tantalum	10.70
Zinc	-2.21	Platinum	12.20
Silver	-2.20	Rhodium	13.20
Gold	-1.80	Titanium	40.10
Lead	-1.50	Palladium	65.00
Copper	-1.08	Manganese	121.00



10. Features of the MagneticScreenScale

1. Commissioning and Operation

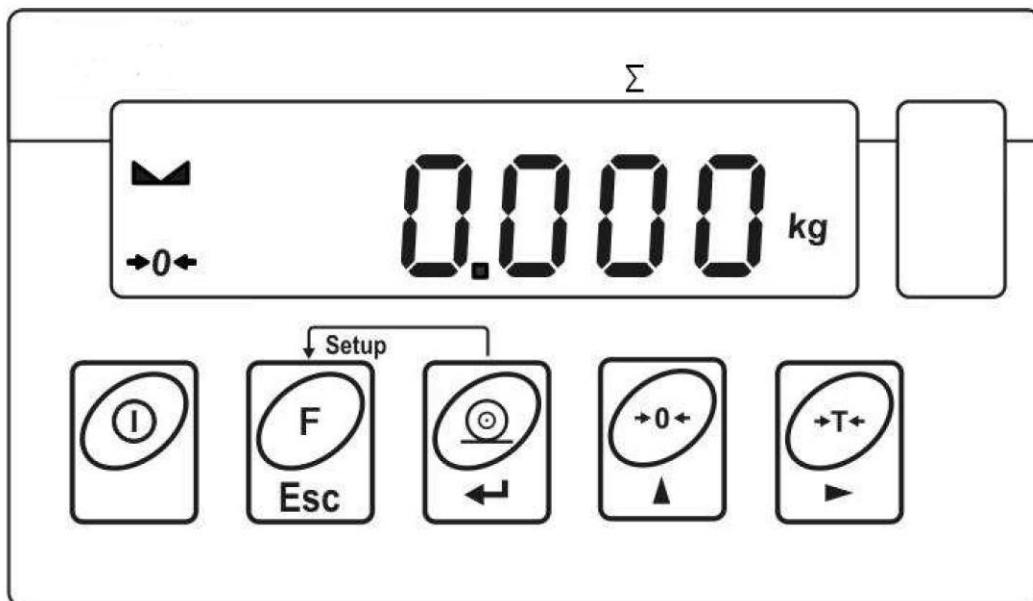
After installing the scale, it should be leveled (i.e. placed plane to the ground). In order to be leveled, the scale features adjustable feet and a water level. Please screw the feet as long as the air bubble in the water level is adjusted in the center.

- Switch the scale on with the ON/OFF button.
- The scale will perform a selftest after pushing the ON/OFF button.
- After finishing the test „0.000“ appears on the display.

2. Warm-up period

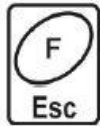
The temperature should be in the range of +15 °C to +30 °C to perform properly. In the period of temperature stabilization, the shown values can change. Hence, the adjustment should be done after that warm-up period.

3. Keyboard





Switch the scale on/off



Feature button – Choose kind of operation



Send measurement result to computer or printer



Scale to zero



Tare option

In order to zero the display, please press the "-> 0 <-" button. The zero appears at the display. The scaling to zero is only possible when the MagneticScreenScale are placed properly on the ground.

Hint: The zeroing is only possible in the range of $\pm 2\%$ of the maximum load. If the value is above $\pm 2\%$ of the maximum load, "<Err2>" appears and an acoustic signal is given.

4. Charge and Discharge of the battery

When the level of the battery is low, the battery symbol will appear on the display. That means that the battery immediately should be charged. The battery can be charged with the provided charger (network operation is also possible).

5. Error Messages

Error message	Description
Err2	Value beyond Zero Range
Err3	Value beyond Tare Range
Err4	Calibration weight or initial weight beyond the range ($\pm 1\%$ for calibration, $\pm 10\%$ for initial weight)
Err5	Weight of a piece beneath the reading division
Err8	Time for Tare exceeded, re-adjustment
Null	Zero Value
FULL2	Weighing range exceeded
LH	Initial weight error, Display out of range (from -5% to $+15\%$ of the initial weight)
5-FULL	Display range of the function „Addition“ full

11. Comparative Values

The following table gives an overview of values which we recorded with the Goldanalytix MagneticScreenScale. Please consider these values as an indicator for the target range. The measured values of your measurements can deviate in certain ranges depending on the year and batch of the corresponding coin or bar. The setup of the scale also plays an important role (especially the distance of the magnet to the Perspex hood). In case of showing a significantly different value you should have a closer look on the testing object. Bars >250 g are consciously not listed below because counterfeits with tungsten rods or tins being covered with a thick layer of gold are not unequivocally identified. Bigger bars can be naturally checked with the MagneticScreenScale up to a penetration depth of ca. 1.5 mm. Nevertheless, in order to explicitly verify the authenticity of the testing object you need to utilize another testing method, i.e. ultrasonic testing. All information is without guarantee.

Material/Object	Wert [g]
Coins pure gold 999.9	
Maple Leaf 1 oz 1988	+0.000 to 0.044
Maple Leaf 1 oz 1988 (in capsule)	+0.000 to 0.051
Maple Leaf 1 oz 2013	+0.01 to 0.07
Vienna Philharmonic 1 oz 1993	+0.01 to 0.07
Vienna Philharmonic 1 oz 2010	+0.000 to 0.050
Kangaroo Nugget 1 oz 1988 (in capsule)	+0.016 to 0.076
Kangaroo Nugget 1 oz 2009	+0.006 to 0.076
Kangaroo Nugget 1 oz 2009 (in capsule)	+0.022 to 0.072
Kangaroo Nugget 1 oz 2012	+0.000 to 0.057
Kangaroo Nugget 1 oz 2012 (in capsule)	+0.015 to 0.065
Kangaroo Nugget 1 oz 2014	+0.01 to 0.07
Kangaroo Nugget 1/4 oz 2020	+0.00 to 0.022
Kangaroo Nugget 1/4 oz 2020 (in capsule)	+0.00 to 0.027
Chinese Panda 1 oz 2012	+0.000 to 0.050
American Buffalo 1 oz 2010	+0.00 to +0.04
Bar pure gold 999.9	
20 g Degussa	+0.00 to 0.04
50 g Heraeus	+0.01 to 0.07
Coins gold alloys	
900 to 916	
100 Kroner Austria (.900)	+0.00 to 0.05
Vreneli. Francs. Latin Monetary Union	-0.040 to 0.03
Krugerrand 1967(.916)	+0.000 to 0.040
Krugerrand 1984 (.916)	+0.005 to 0.06
Krugerrand 2010 (.916)	+0.00 to 0.050
Mexican 50 Pesos (.916)	+0.00 to 0.06
Chilesean 100 Pesos 1926 (.900)	+0.000 to 0.040
American Eagle 2011 (.916)	+0.010 to 0.060

1/20 Oz Krugerrand	+0.000 to 0.020
Babenberger (.900)	+0.00 to 0.04
Ducats Austria (1&4)	+0.000 to 0.040
100 Kroner Austria 1915	+0.000 to 0.040
Britannia 1987	+0.000 to 0.040
Britannia 2012	+0.000 to 0.051
Coins silver 958 to 999.9	
Maple Leaf 1 oz 2014 (999.9)	+0.000 to 0.040
Maple Leaf 1 oz 2012 (999.9)	+0.000 to 0.042
USA Dollar Eagle 1 oz 2013 (999.9)	+0.000 to 0.050
Australian 1 Dollar Koala 1 oz (999.0)	+0.000 to 0.046
Australian 1 Dollar Koala 1/2 oz (999.0)	+0.000 to 0.042
Australian Lunar Seriea II Goat 2015 (999.9)	+0.006 to 0.056
Kookaburra 1 Oz 2014 in capsule (999.0)	+0.003 to 0.053
10 Yuan Chinese Panda 1 oz (2014)	+0.000 to 0.046
Vienna Philharmonic 1 oz 2008 (999.9)	+0.002 to 0.052
Britannia 2 Pounds (958.0)	+0.002 to 0.060
Britannia 1 oz 2014 (958)	+0.000 to 0.041
Mexican Libertad 1 oz 2012 (999)	+0.000 to 0.040
Armenia Noah's Ark 1/2 oz (999) 2011	+0.000 to 0.035
Maria-Theresa thaler	+0.002 to 0.052
Bars fine silver 999.9	
Bar 250 g Heraeus	+0.02 to 0.09
Miscellaneous	
Platinum 1/10 oz Isle of Man (999.5)	-0.02
Platinum 50 Dollar Maple Leaf	-0.07 to -0.09
US Platinum Liberty 2010	-0.015 to -0.025
Cook Island Palladium	-1 to -1.5
Palladium Maple Leaf 2005	-1 to -1.5
Tungsten 99.9% 20 x 5mm disk	-0.05
Titanium disk 40 g	-0.385
Krugerrand gold forged	-3.5
Maple Leaf gold forged	-5.6
Bar gold 1 oz forged	-5.5
Maria-Theresa thaler silver made from lead tin alloy forged	+0.026 to +0.046
Chinese Panda 1 oz silver containing a molybdenum core forged	-0.01 to -0.03
Bismuth piece 160 g	+0.150
Graphite disk	+0.100 to +0.450

12. Specifications of the MagneticScreenScale

Specification	Description
Tare weight (without setup)	about 1.7 kg
Additional features	Self-calibration Tare function Display of error messages
Umgebungsbedingungen	+5 °C to + 35 °C during operation state +10 °C to + 50 °C during storage

13. Environmental and Disposal Instructions



Used electronic devices are not allowed to be deposited in the household waste according to European regulations [1], but have to be disposed separately. The symbol on the dustbin indicates on the necessity of the separation from the household waste. Please help to protect the environment. Please assure that in case of not using the device anymore to give it to the corresponding garbage pick-up.

Please inform yourself about the local waste calendar and your city or municipal administration, respectively, about the opportunities of returning old equipment.

[1] Regulation 2002/95/EG of the European Parliament and Council for electronic old equipment

14. More non-destructive Gold-Testing Devices by Goldanalytix



GoldScreenPen

The GoldScreenPen is one of the most versatile electronic precious metal testers. The world's smallest probe tip enables the user to measure of coins, ingots and jewellery (even through films and blisters). The measured conductivity value, which is detected up to a depth of 0.5 mm, is displayed on the digital screen.

www.gold-analytix.com/goldscreenpen-electronic-gold-tester

Ultrasonic device - BarScreenSensor

The BarScreenSensor is the most important measuring device for testing the authenticity of gold bars (and other precious metal bars). The ultrasonic measurement allows full penetration of all common ingot sizes above one ounce and detects inclusions of foreign metals with differing sound velocities.

www.gold-analytix.com/Ultrasound-Scanner



GoldScreenBox

The GoldScreenBox measures the conductivity of coins and ingots by using the eddy current method with penetration depths up to 650 μm . You can characterize the authenticity of those precious metal objects even through capsules, films and blisters up to a thickness of 3 mm.

www.gold-analytix.com/goldscreenbox

DensityScreenScale

The Goldanalytix device for testing precious their authenticity. Most can be detected by using of different densities of gold, for example, is higher counterfeit alloys.

www.gold-



DensityScreenScale is a great metals of different sizes for fake coins, ingots or jewellery the Density Balance because the objects. The density of than the density of many

analytix.com/density-balance



Goldanalytix – a registered trademark of

MARAWE GmbH & Co. KG

Donaustauer Str. 378, Building 64

93055 Regensburg

Amtsgericht – Registergericht – Regensburg

HRA 9148, Seat: Regensburg

Personally liable partner:

MARAWE Verwaltungs GmbH, Seat: Regensburg

Amtsgericht Regensburg HRB 14591

Managers: Dr. Jonas Mark, Dr. Peter Raster, Dr. Stefan Weiß

Phone: [+49 941 29020439](tel:+4994129020439)

Fax: [+49 941 29020593](tel:+4994129020593)

E-Mail: gold-analytix@marawe.eu

www.gold-analytix.com