

*Precious Metal* **V** **ERIFIER** **INVESTOR**

**MANUAL**  
MODEL #3012

**Sigma**  
**O** **Metalytics**

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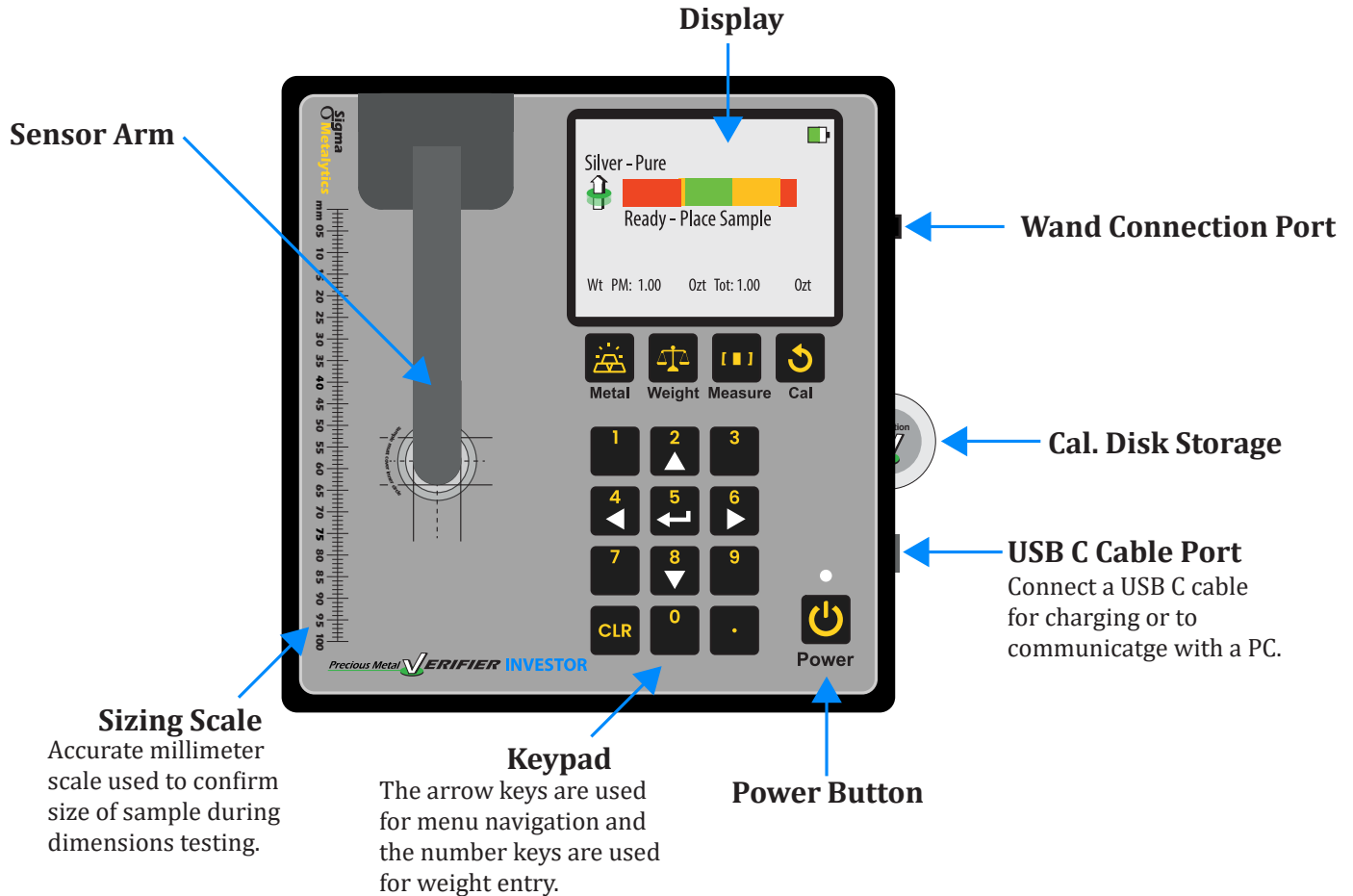
# **CAUTION**

## **Read Before Use**

The onboard sensor bridge is sensitive to stress. **DO NOT** force it left or right, place heavy objects on it, lift the device by the bridge. Stress can cause miscalibration and damage.

Sigma Metalytics and the Precious Metal Verifier INVESTOR make no claim, guarantee, or promise that measurements made by the Precious Metal Verifier INVESTOR indicate that any sample is or is not genuine. Measurement results, whether within or without the bounds consistent with the selected metal or alloy, are INFORMATIONAL ONLY and any judgment about or action taken with regard to any sample is entirely the responsibility of the user. To ensure accuracy, thoroughly read the included instructions and be aware of the special conditions which may affect the readings.

# Device Diagram



# PMV INVESTOR Functions

The PMV INVESTOR uses up to four different measurements to determine if a coin or bar is consistent with genuine precious metals.

The four measurements are:

- 1. Basic Verification Mode:** The PMV INVESTOR Wands measure the sample's resistivity just under the surface of the metal. This ensures there are no contaminants or foreign metals in or near the surface.
- 2. Thru Mode:** The PMV INVESTOR onboard sensor uses a sensor in the arm and in the base of the device to measure the sample's bulk resistivity. This measurement checks the entirety of the sample and ensures there are no contaminants or foreign metals anywhere between the two sensors.
- 3. Thickness Measurement:** The PMV INVESTOR electronically measures the thickness of the sample using the average thickness of the face of the sample.
- 4. Dimension Verification:** The PMV INVESTOR can perform a specific gravity test to ensure the sample is the correct density. The user must enter the measured weight of the sample to perform this test.

# How to get the most out of your PMV INVESTOR

The PMV INVESTOR is used to test the resistivity and density of precious metal coins and bars. A genuine sample should pass both resistivity and density testing. It's important to use the right settings and sensors to make sure your PMV INVESTOR is providing the best results. Here's how to get the most out of your PMV INVESTOR:

- 1. Power on the device and make sure it's able to calibrate properly:** Press the power button to turn the device on. PMV calibrates itself while turning on, so be sure there are no samples onboard. Read the Power On and Calibrate section (Pg. 7) for more.
- 2. Select the correct alloy and enter the correct weight:** Select the expected alloy of the sample and enter the weight. Follow the steps in the Metal Selection (Pg. 9) and Weight Entry (Pg. 10) to do so. If you don't know the expected alloy or weight, refer to the Testing Best Practices section (Pg. 20) for advice.
- 3. Perform the testing and interpret the results:** Perform the resistivity testing by following the steps in the Resistivity Testing section (Pg. 12). If possible, test the sample's density as well following the Dimension Verification steps (Pg. 14). Use the Results Interpretation section (Pg. 13) to understand the results from the PMV.

# Power On and Calibrate

Power on your PMV INVESTOR by pressing the **POWER** button. The device will display the serial number, firmware version, FPGA version, and database version. The device self-calibrates during the power on stage. While the device is powering on, ensure there are no samples on the device and that the arm is in the upright and resting position. This calibration checks the internal components and prepares the device for use. When complete, the device will show the **READY** screen.



Power

Precious Metal  
Verifier PMV5

Serial No: XXXX  
Firmware Version: XX.XX  
FPGA Version: XX.XX  
Database: XX.XX

A white checkmark icon with a green shadow, indicating successful completion of the power-on process.

Calibrating  
Please wait

Silver - Pure

A green house icon with a white roof, positioned to the left of a horizontal bar chart.

Red	Green	Yellow	Red
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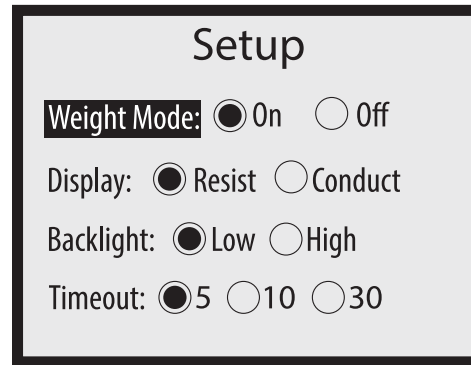
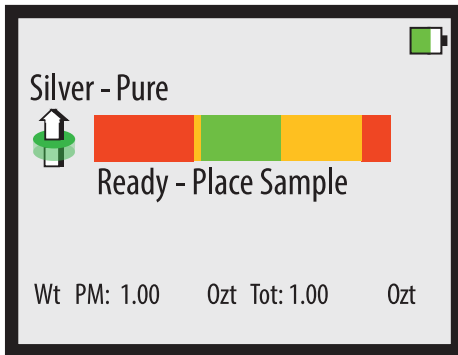
Ready - Place Sample

Wt PM: 1.00    Ozt Tot: 1.00    Ozt

# Setup

You may change some settings in the **SETUP** screen. To access the **SETUP** screen, press the **RIGHT** button on the **READY** screen. Use the **UP** and **DOWN** buttons to select the category, and use the **RIGHT** and **LEFT** buttons to change the selection within a category. Press the **ENTER** button when done to exit the **SETUP** screen.

Note: You do not need to setup the device each time you use it, the settings are saved between uses.





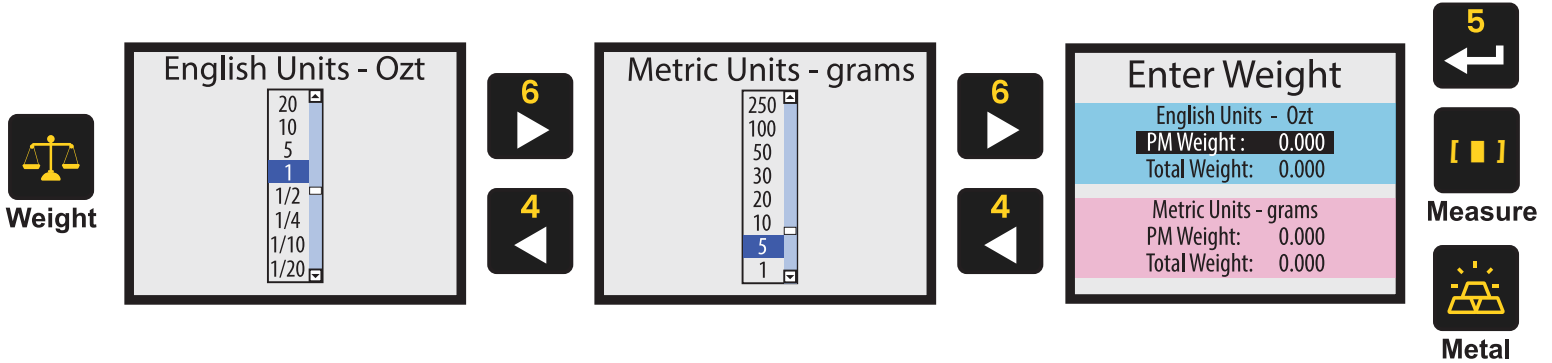
# Metal Selection

Prior to taking a measurement, you must select the appropriate metal or alloy from the metal selection database. Choose the metal you expect the sample to be. Press the **METAL** button to open the selection menu. Use the **LEFT** and **RIGHT** buttons to navigate between metal categories, and use the **UP** and **DOWN** buttons to select a specific metal within a category. When ready, press the **ENTER**, **MEASURE**, or **WEIGHT** button to confirm the selection.



# Weight Entry

Press the **WEIGHT** button to enter the weight of a sample. You can either select from the options listed in the English Units (Ozt) and Metric Units (grams) categories, or you can manually enter a weight on your own. Use the **LEFT** and **RIGHT** buttons to navigate between categories, and use the **UP** and **DOWN** buttons to select options within a category. When ready, press the **ENTER**, **MEASURE**, or **METAL** button to confirm the selection. Entering the correct weight is important to accurately testing dimensions.



**Weight**

English Units - Ozt

- 20
- 10
- 5
- 1
- 1/2
- 1/4
- 1/10
- 1/20

Metric Units - grams

- 250
- 100
- 50
- 30
- 20
- 10
- 5
- 1

Enter Weight

English Units - Ozt

PM Weight: 0.000

Total Weight: 0.000

Metric Units - grams

PM Weight: 0.000

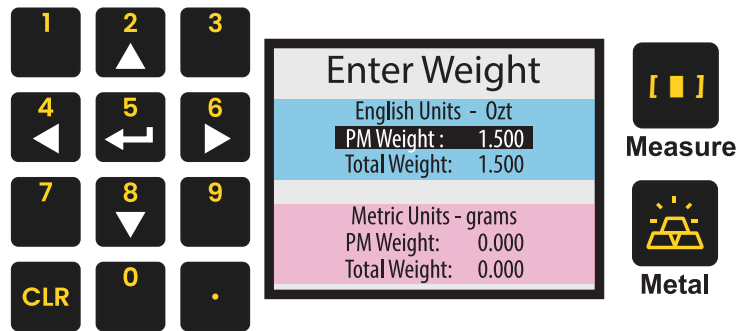
Total Weight: 0.000

**Measure**

**Metal**

## Manual Weight Entry

To manually enter weight, use the **UP** and **DOWN** buttons to select the type of weight you want to enter. Press the **ENTER** button to change the indicated weight. Use the **NUMBER** buttons to enter the desired weight. Press the **WEIGHT** button when finished to save the entry. When finished, press the **MEASURE** or **METAL** button to continue use.



1 2 3

4 5 6

7 8 9

CLR 0 .

Enter Weight

English Units - Ozt

PM Weight: 1.500

Total Weight: 1.500

Metric Units - grams

PM Weight: 0.000

Total Weight: 0.000

**Measure**

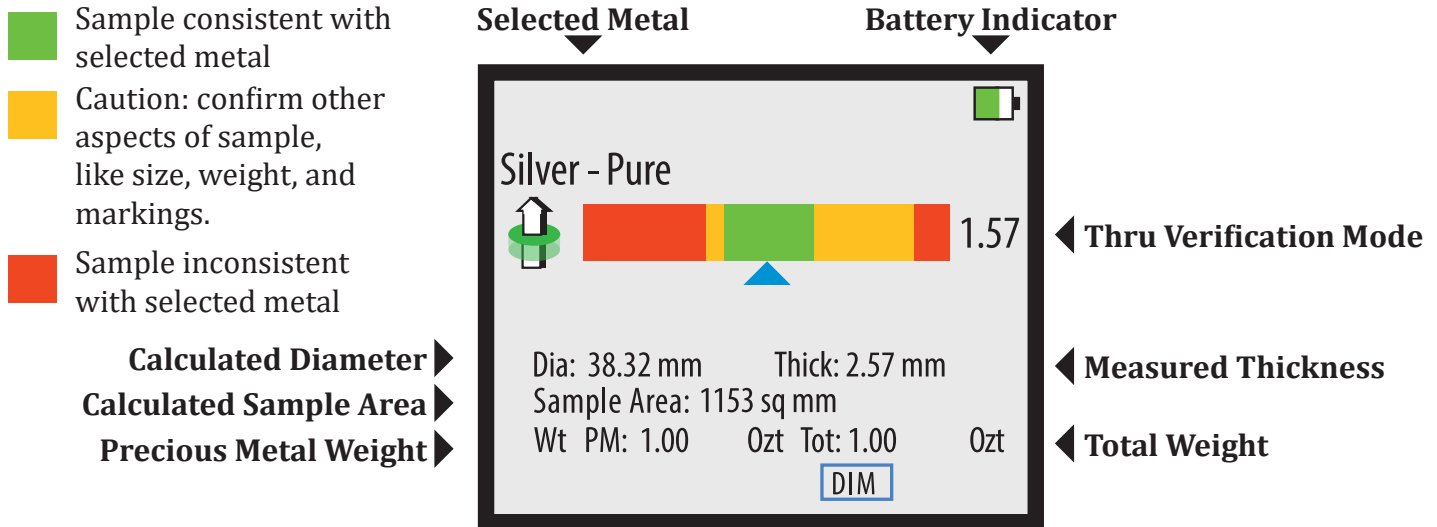
**Metal**

### Note:

PM Weight is the precious metal weight in the sample.


# Measurement Screen

The **MEASUREMENT** screen will display when taking a reading. Below is a basic explanation of each part of the screen. The screen will not display the diameter, thickness, or weight if weight mode is turned off. When using a Wand attachment, only the Basic Verification Mode bar will display.



 **Blue Arrow**  
Indicates the device is getting a reliable reading.

 **Red Arrow**  
Indicates the device is getting an unreliable reading, treat result with caution.

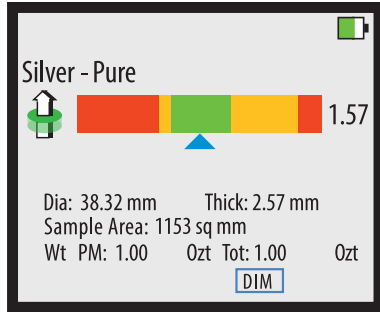
 **Sideways Arrow**  
Indicates the result is off the scale in specified direction.

# Resistivity Testing

The INVESTOR's onboard sensor and Wands test the characteristic resistivity of precious metal coins and bars. Each precious metal alloy has an expected resistivity value; the PMV's sensors test the sample's resistivity and compare it to the known resistivity of the selected alloy. To properly test your sample, follow these steps:

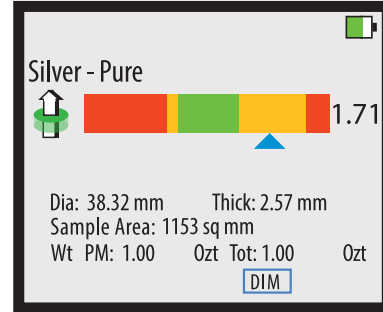
- 1. Select the expected alloy:** Select the expected alloy of the sample. Follow the steps in the Metal Selection (Pg. 9) to do so. If you don't know the expected alloy, refer to the Testing Best Practices section (Pg. 20) for advice.
- 2. Place the sample on the sensor:** Place the sample on the onboard sensor or touch the face of a Wand to the sample. Refer to the Wand Use section (Pg. 18) for how to use a wand.  
**Note:** the sample does not need to physically touch the sensor or wand. The PMV can read through plastic and cardboard and can read through most cases. You do not need to remove the sample from the case to test.
- 3. Interpret the results:** Refer to the Resistivity Testing Interpretation section (Pg. 13) for details on determining the results of your sample's resistivity test. Generally, green is good, yellow is caution, and red is questionable.

# Resistivity Testing Interpretation



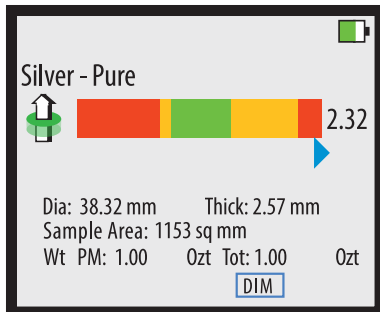
## Reliable Reading, Good Sample

The device is getting a reliable reading and the reading is consistent with the selected metal.



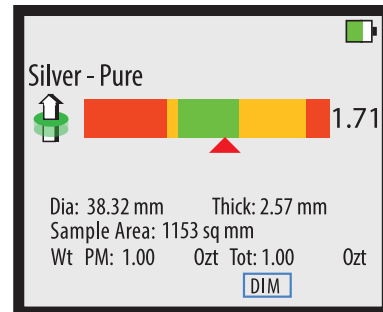
## Reliable Reading, Confirm Density

The device is getting a reliable reading but the result is in the caution range. Confirm the density of your sample. If it passes this is a good sample.



## Reliable Reading, Questionable Sample

The device is getting a reliable reading but the sample is testing outside of the expected range and is inconsistent with the selected alloy.



## Unreliable Reading

The arrow turns red when the device is getting an unreliable reading. Confirm the testing conditions are correct before trusting the results.

# Dimension Verification

To verify the dimensions of a sample, the correct metal must be selected and the correct weight must be entered. To verify the dimensions of a sample, press the **MEASURE** button while the device is reading the sample with the onboard sensor.

The INVESTOR has two dimension verification modes. The device will automatically select the mode that applies to the sample being tested. If the sample is small enough to fit on the display, the device will use the visual dimension verification mode. If the sample is too large to fit on the display, the device will use numerical dimension verification mode.

If the INVESTOR prompts you for the shape of the sample, it is using the visual dimension verification mode. You can find more info about the visual dimension verification mode on Page 16. Otherwise, the INVESTOR will immediately show the numerical dimension verification mode. The numerical dimension verification mode information is on page 15.

**Note:** The INVESTOR must be actively reading a sample when **MEASURE** is pressed to perform dimension verification. The INVESTOR is unable to provide dimension verification when using the Wand attachments.

# Numerical Dimension Verification

To verify the dimensions of a sample, the correct metal must be selected and the correct weight must be entered and the sample must be tested using the onboard sensor. To verify the dimensions of a sample, press the **MEASURE** button while the device's onboard sensor is reading the sample. Once the **DIMENSIONS** screen appears, you may move the sample away from the sensor. The following will be displayed:

Dimensions	
Rectangular Sample	
Width:	30.0
Min. Length:	38.4
Max. Length:	45.2
Round Sample	
Min. Dia.(mm):	38.3
Max. Dia.(mm):	41.6
Area (sq mm):	1279.1
Thick. (mm):	2.3
MEAS	

You may use the scale printed on the face of the device to determine the dimensions of your sample and confirm that the sample's dimensions are within the dimensions calculated by the INVESTOR.

**Rectangular Samples:** Measure the width of your sample. Press the **ENTER** button and use the **NUMBER** buttons to enter the measured width. Press the **WEIGHT** button when finished. The INVESTOR will recalculate the Min. and Max. Length of your sample. Measure the length to confirm that your sample is within the range. If it is not, then the sample is the wrong density.

**Round Samples:** Measure the diameter of your sample to confirm that your sample is within the Min. and Max. Diameters calculated by the INVESTOR. If it is not, then the sample is the wrong density.

# Visual Dimension Verification

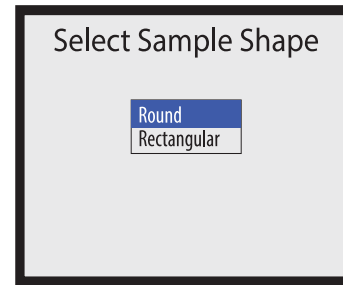
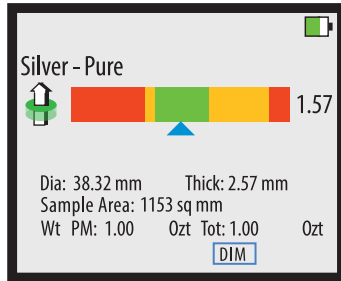
Select the shape of the sample using the **UP** and **DOWN** buttons. Once the DIMENSION screen appears, you may move the sample away from the sensor.

- **For round samples:** align the right edge of the sample to the vertical solid black line on the right-hand edge of the screen. The left edge of the sample is expected to fall within the green range indicated on the screen. If the edge falls within the range, then the sample's density is consistent with the selected metal. If the left edge falls outside of the green range, then the sample's density is inconsistent with the selected metal.
- **For rectangular samples:** align the right edge of the sample to the solid black line on the right-hand edge of the screen. Align the top of the sample to the horizontal solid black line on the top edge of the screen. Use the **UP** and **DOWN** buttons to adjust the indicated width on the screen to match the width of the sample. While adjusting the width, if the device determines that the sample is too long for the display, it will switch to numerical dimension verification mode. With the top edge, the right edge, and width aligned properly, the sample's left edge should fall somewhere within the green range. If the edge falls within the range, then the sample's density is consistent with the selected metal. If the left edge falls outside of the green range, then the sample's density is inconsistent with the selected metal.

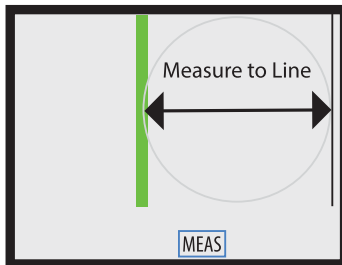
**Note:** If a sample fails the density test, double check to make sure the correct weight is entered and the correct alloy is selected. Then, test again before assessing the sample.



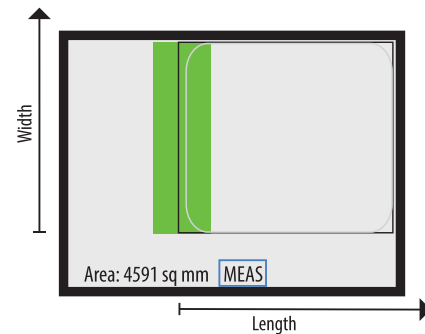
# Visual Dimension Verification Diagram



## Round Sample



## Rectangular Sample

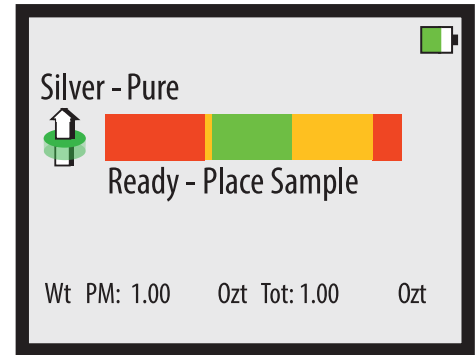
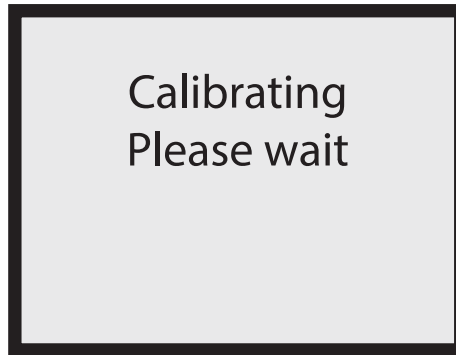


Green Bar = acceptable range

# Wand Use

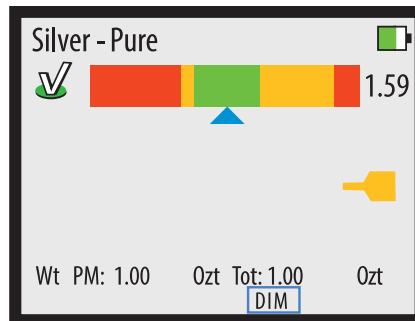
Wands are optional attachments for the PMV INVESTOR. To use a Wand attachment, plug the Wand into the Wand Connector on the right-hand side of the device. When you plug in the Wand, the device will self calibrate. Ensure the head of the Wand is at least one inch away from any metal during this calibration process. When the **READY** screen is displayed, you may touch the face of the Wand to a sample.

When measuring with the Wand, only the **Basic Verification Mode** reading will display. There will also be a yellow Wand indicator on the screen indicating the device is using the Wand's sensor. Wands are not able to perform density testing.



## Wand Reading Screen

When the Wand is touched to metal, the screen will change to show the results of the reading. There is only one bar and a yellow icon appears to indicate that the wand is in use.



← **Basic Verification Reading Result**

← **Wand Icon**

# PC Interface

The PMV INVESTOR is capable of using a Windows PC (Windows 7, 8, 10, and 11) as an interface for the device. You must first install the PC Interface program by downloading it from our website ([www.sigmametalytics.com/investor-pc](http://www.sigmametalytics.com/investor-pc)) and following the included download and installation instructions.

Once the program is successfully downloaded and installed, plug the INVESTOR device into your PC using the included USB cable.

To install the INVESTOR PC interface:

1. Go to [www.sigmametalytics.com/investor-pc](http://www.sigmametalytics.com/investor-pc) and download the PMV INVESTOR Application Installation zip file.
2. Open the downloaded .zip file with File Explorer. Click into the PMV INVESTOR Folder and double click on the PMV INVESTOR installation program (.MSI file type).
3. Your computer might show a warning that the .MSI was stopped from running because it might be dangerous. Click “Learn More” and then “Run Anyway” to install the program.
4. The program will install to the C: drive by default, but you may select a custom folder.
5. You should now be able to find the on your desktop or by searching your installed applications for “PMV INVESTOR.”
6. Connect your INVESTOR to your computer using the included USB cable. Power on your device and run the PMV INVESTOR program to get started.
7. While using the INVESTOR with the PC interface, the readings will display on both the device’s display and the PC application.

# Testing Best Practices

Below are the best practices for testing with a PMV:

**1. Determine the expected alloy of the sample before testing.**

Determine a sample's expected alloy before testing and select that alloy from the metals menu. The PMV is not designed to "find" the alloy of a sample; testing an alloy on an incorrect setting can lead to false negatives and false positives and will not provide reliable or valuable information. If you know the alloy already, select that alloy from the menu. If you don't already know the alloy, look the sample up in a trusted online database or coin book to determine the expected alloy.

**2. Weigh your sample prior to testing.**

Weigh your sample prior to testing using a scale. If the sample is the correct weight, enter that into the device prior to testing the dimensions. If the sample is not the expected weight (for example, it's supposed to be a 1 ozt. coin, but it weighs 1.2 ozt) then that is a highly questionable sample.

**3. Do not test a sample on a different alloy if it fails on its expected alloy setting.**

If a sample fails to pass on its expected alloy setting, do not re-test the sample on a different setting. A genuine sample should pass on its expected alloy setting. If it does not pass, that means the sample is inconsistent with the expected resistivity for the selected alloy.

**4. Perform whatever non-destructive testing you can.**

The PMV is a powerful tool for testing the resistivity and density of samples. However, always perform whatever additional, non-destructive testing you can, such as examining the sample's markings and designs and checking the sample's provenance. More non-destructive testing is always good and a genuine piece should pass every test.

**5. Do not remove samples from cases or damage them in any way.**

The PMV can test samples through plastic and cardboard cases, capsules, holders, coin flips, and assays. There is no need to remove the sample from its protective case or holder, and doing so may lower the value of the sample. There is also no need to scratch or damage a sample when testing with the PMV. Do not cut, scratch, or damage your samples in any way to test.

**6. If a sample fails a test, double check to be sure the right settings are selected.**

The PMV relies on the user-entered information to assess whether a sample has the correct expected characteristics. If either the alloy selection or the sample weight is incorrect during testing, the PMV can return inaccurate results. If a sample fails a test, double check to make sure the device is set to the right settings before making an assessment of the sample.

# Common Questions

## 1. Why does my silver read in the yellow?

Our “Pure Silver” range is calibrated to put .9999 silver in the green and .999 silver in the yellow on the right. We do this because we so frequently see .999 silver counterfeited that we want all users to be cautious of .999 silver samples and to check the other aspects (markings, weight, and size) of the sample prior to making any judgment. If you are using an onboard sensor, you can use the INVESTOR’s sizing feature to confirm the size of the sample.

## 2. What does a reading to the left versus to the right mean?

The left side of the reading range indicates less resistivity and the right side indicates more resistivity. If a sample reads to the left, it means it is less resistive than expected; if a sample reads to the right, it means it is more resistive than expected.

## 3. Why do my modern sandwich quarters read in the range on 90% silver?

Modern coinage is designed to have the same resistivity as older 90% silver coinage to ensure they all work in vending machines. The best way to ensure your quarters are 90% silver is to check their weight: modern quarters are about 0.5 grams lighter than older quarters.

## 4. Why doesn’t the dimension screen come up?

The device needs to be actively measuring the sample when you press the **MEASURE** button to bring up the dimensions verification screen. If the device is not actively reading a sample, pressing **MEASURE** will not bring up the dimensions screen.

## 5. When do I need to re-calibrate?

The device will self-calibrate when powering on and when plugging in an attachment. In regular use, we recommend re-calibrating the device every 25 - 30 minutes; this ensures the device’s properly measuring samples. Simply clear the device of all samples and press the **CAL** button to re-calibrate.

## 6. Why does the device provide a different thickness measurement on coins than the mint or a retailer?

The PMV INVESTOR electronically measures thickness and takes the average thickness from the face of the coin while trying to account for relief, design, and lettering. Mints and retailers measure coin thickness using calipers at the rim, not the face. Because of this different method of measuring, the INVESTOR’s thickness measurement is usually slightly thinner than what’s published by the mint or retailers.

## 7. How long does the battery last?

The PMV INVESTOR can go for about 4 hours of constant use before needing a charge. The device has a high-capacity battery, so you can leave it charging overnight or for long periods without damaging the system.

More questions? Give us a call or WhatsApp us at 530.562.4589 or send us an email at [info@sigmametalytics.com](mailto:info@sigmametalytics.com).

# Warranty

Sigma Metalytics Precious Metal Verifier INVESTOR devices come with a two-year limited warranty. Sigma Metalytics offers different methods for warranty service, including, but not limited to, parts, software dispatches, and mail-in service. This limited warranty lasts for two years from the day of purchase and covers defects in materials and workmanship in your Precious Metal Verifier INVESTOR and its accessories. If purchased through a retailer or distributor, you may be required to provide Sigma Metalytics with your original sales receipt from your purchase to qualify for our warranty service.

This limited warranty does not cover damage, problems, or malfunctions which result from:

- External causes, such as accident, abuse, misuse, or problems with electrical power.
- Servicing not authorized by Sigma Metalytics.
- Usage that is not in accordance with the device's instructions.
- Failure to follow the device's instructions.
- Use of accessories, parts, or components not supplied by Sigma Metalytics.
- Products for which Sigma Metalytics has not received payment.
- Normal wear and tear.

If, in our repair technician's sole discretion, the device's damage, problems, or malfunctions are the result of any of the causes listed above, the repair will be subject to a charge.

Please contact us for service, repair, and questions. We are happy to troubleshoot any problems over the phone or via email and set up a repair as needed.

Phone: (530) 562-4589

Email: [info@sigmametalytics.com](mailto:info@sigmametalytics.com)



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**Sigma**  
**O** **Metalytics**