Precious Metal VERIFIER PRO

MANUAL

MODEL #2701

Sigma Metalytics

Contents

CAUTION

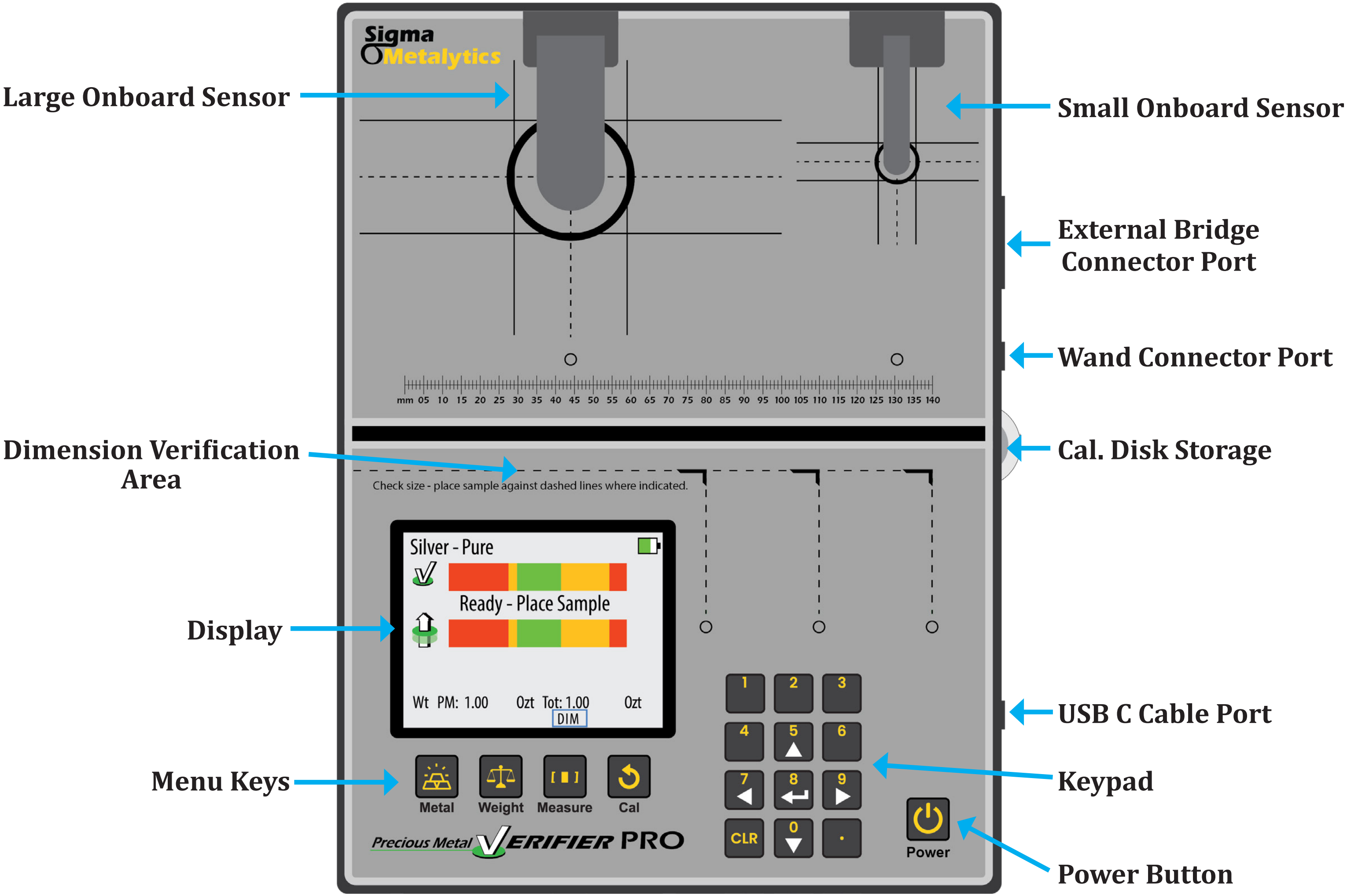
Read Before Use

- The onboard sensors and bridges are very sensitive to stress. **DO NOT** press on them, place objects on them, or lift the device by the bridges. Stress can cause miscalibration and damage.

- The plastic cover on the display protects the screen from damage. **DO NOT** remove the plastic cover from the display.

Sigma Metalytics and the Precious Metal Verifier PRO make no claim, guarantee, or promise that measurements made by the Precious Metal Verifier PRO 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 PRO Functions

The PMV PRO 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 PRO measures 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:** Using the sensors above and below the sample, the PMV PRO measures 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.

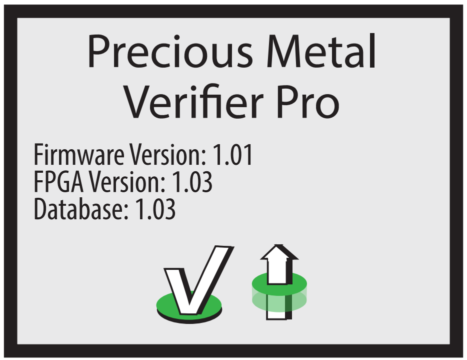
3. **Thickness Measurement:** The PMV PRO electronically measures the thickness of the sample using the average thickness of the face of the sample.

4. **Dimension Verification:** The PMV PRO 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.

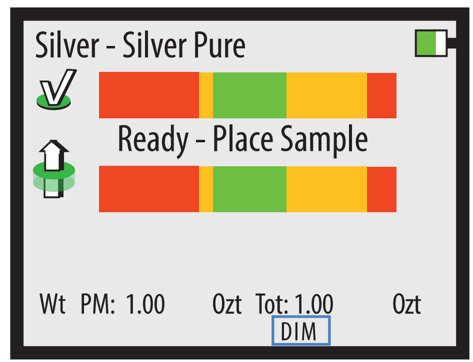
Power On and Calibrate

Power on your PMV PRO by pressing the **POWER** button. The device will display the serial number, firmware version, FPGA version, and database version. The device needs to be calibrated each time it is turned on. This calibration checks the internal components and prepares the device for use. Press the **CAL** button to calibrate. The device will check each sensor then show the **READY** screen.

Power



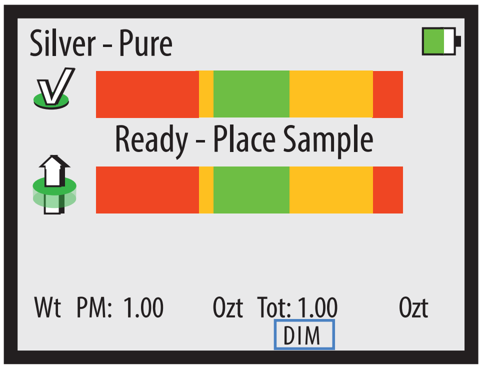
Cal

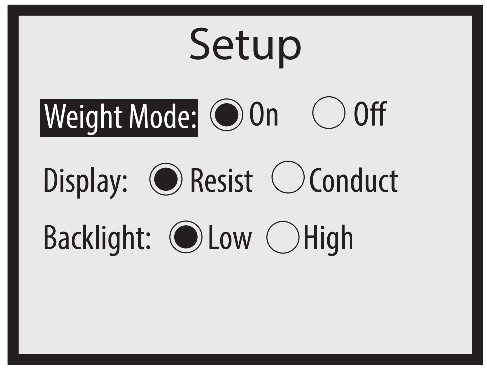


Setup

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.



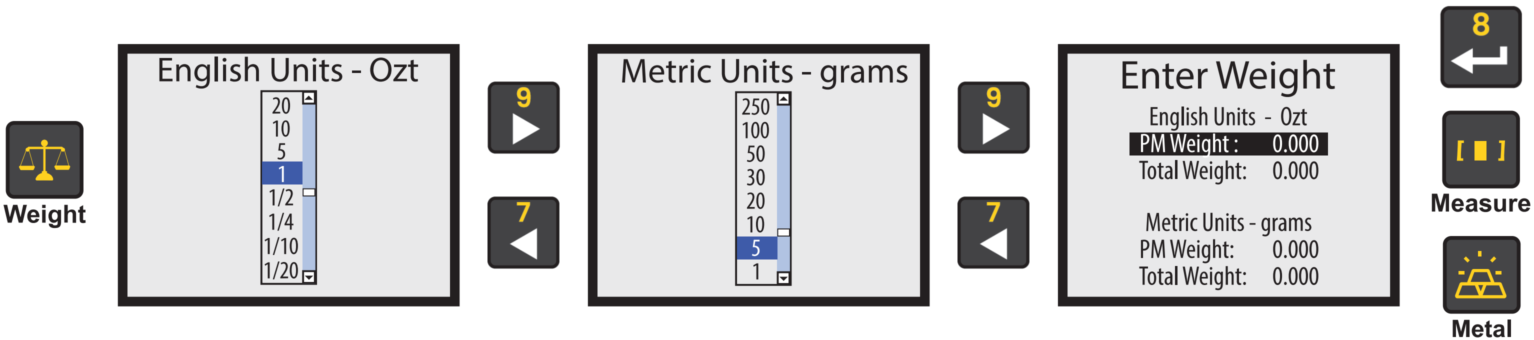


Metal Selection

Prior to taking a measurement, you must select the appropriate metal or alloy from the metal selection database. Press the **METAL** button 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.

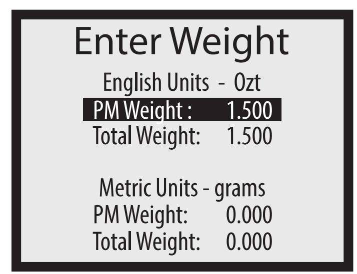
Weight Entry

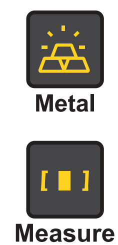
To enter the weight of a sample, press the **WEIGHT** button. You can either select from the options listed in the English Units (Ozt) and Metric Units (grams) categories, or you can manually enter a weight on your own. Use the **LEFT** and **RIGHT** buttons to navigate between categories, and use the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



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.





Note:
PM Weight is the precious metal weight in the sample.

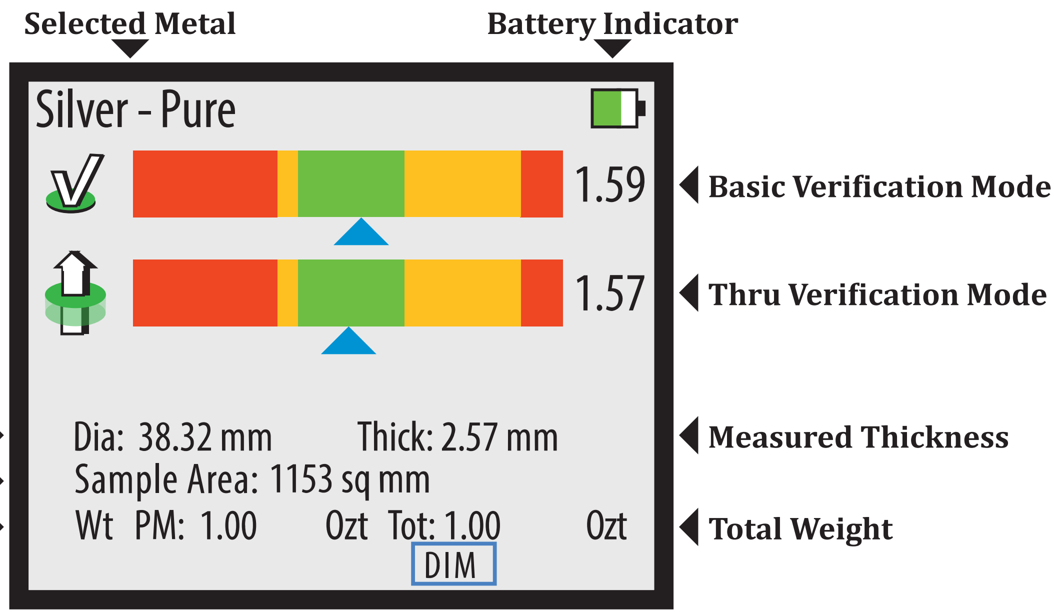
Measurement Screen

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.

Sample consistent with selected metal

Caution: confirm other aspects of sample, like size, weight, and dimension.

Sample inconsistent with selected metal

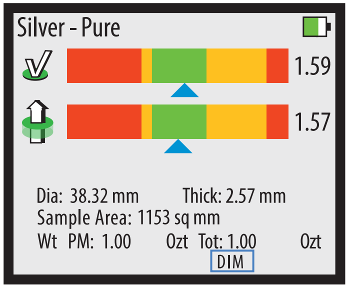


Blue Arrow
Indicates the device is getting a reliable reading.

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

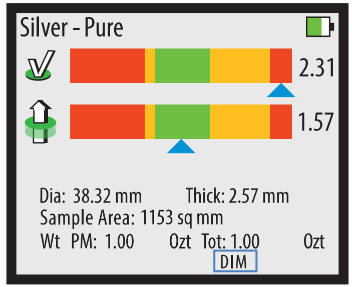
Sideways Arrow
Indicates the result is off the scale in specified direction.

Measurement Interpretation



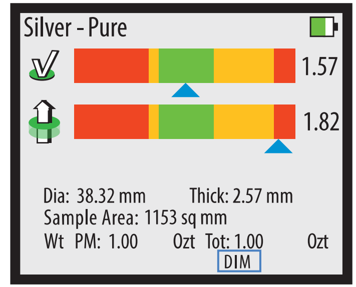
Reliable Reading, Good Sample

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



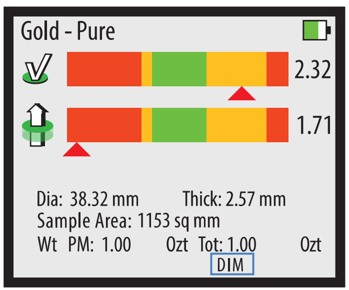
Reliable Reading, Bad Surface

The device is getting a reliable reading but the Basic Verification Mode indicates that the surface of the sample is inconsistent with the selected metal.



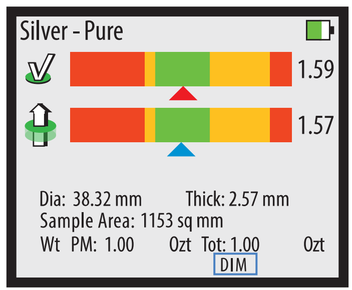
Reliable Reading, Bad Interior

The device is getting a reliable reading but the Thru Verification Mode indicates that the bulk of the sample is inconsistent with the selected metal.



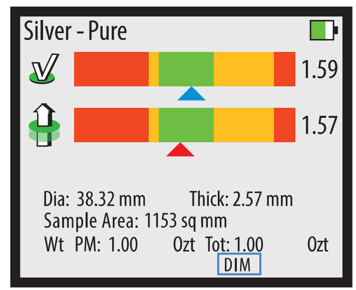
Readings Differ Significantly

The red arrows indicate that the sample's results differ significantly, indicating a problem with the sample.



Unreliable Basic Reading

A red arrow on the top bar means the sample is too small. Try measuring with a smaller sensor.



Unreliable Thru Reading

A red arrow on the bottom bar means the sample is too thin. Try measuring with a smaller sensor.

Dimension Verification

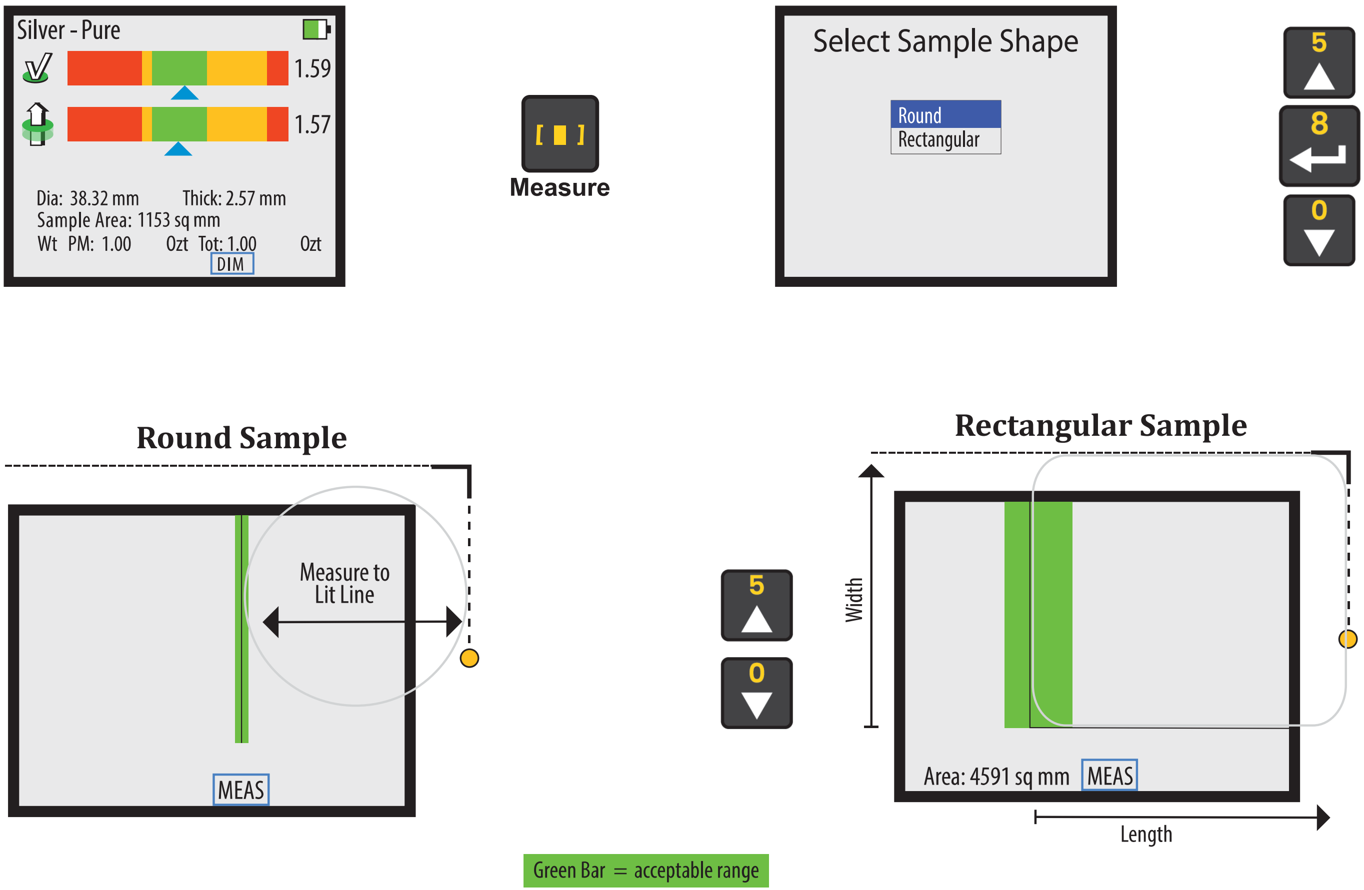
To verify the dimensions of a sample, the correct metal must be selected and the correct weight must be entered. To verify the dimensions of a sample, press the **MEASURE** button while the device is reading the sample. Select the shape of the sample using the **UP** and **DOWN** buttons. Once the DIMENSION screen appears, you may move the sample away from the sensor.

- **For round samples:** align the right edge of the sample to the vertical dotted line indicated by the illuminated LED. 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 vertical dotted line indicated by the illuminated LED. 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, the illuminated LED may change to indicate a different vertical dotted line. Re-align the right edge of the sample to the new line. With both 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: The PRO must be actively reading a sample when **MEASURE** is pressed to perform dimension verification. The PRO is unable to provide dimension verification when using the Wand attachments.

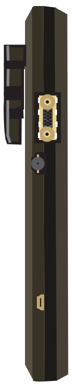
Dimension Verification Diagram

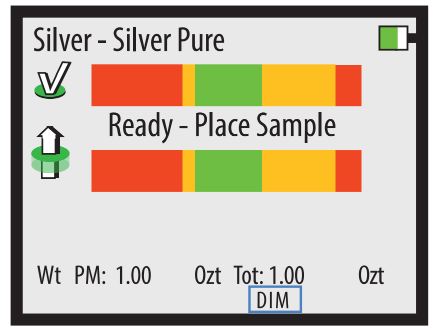


Wand Use

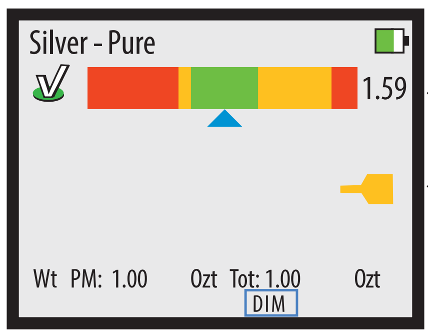
Wands are optional attachments for the PMV PRO. To use a Wand attachment, plug the Wand into the Wand Connector on the right-hand side of the device. When you plug in the Wand, the device will ask for calibration. Remove all samples from the device and ensure the Wand is at least one inch away from any metal, then press the **CAL** button. 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.





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.



Single Reading Result

Wand Icon

PC Interface

The PMV PRO 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/pro-pc) and following the included download and installation instructions.

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

To install the PRO PC interface:

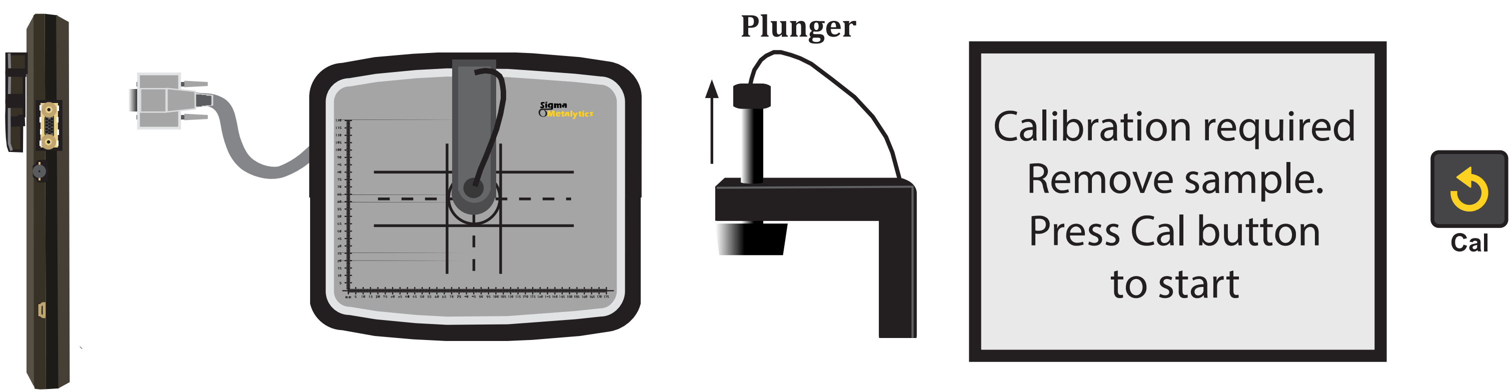
1. Go to www.sigmametalytics.com/pro-pc and download the PMV PRO Application Installation zip file.
2. Open the downloaded .zip file with File Explorer. Click into the PMV PRO Folder and double click on the PMV PRO installation program (.MSI file type).
3. Your computer might show a warning that the .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 PRO.”
6. Connect your PRO to your computer using the included USB cable. Power on your device and run the PMV PRO program to get started.
7. While using the PRO with the PC interface, the readings will display on both the device’s display and the PC application.

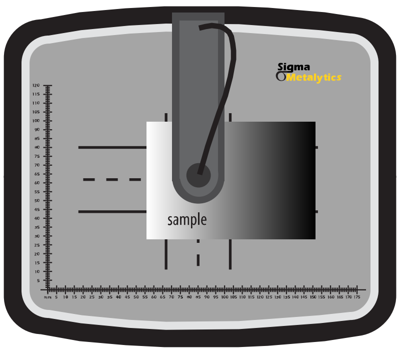
External Bridge

The External Bridge is an optional attachment for the PMV PRO. To use the External Bridge, plug the External Bridge into the External Bridge connector on the right-hand side of the device. When you plug in the External Bridge, the device will ask for calibration. Remove all samples from the device and External Bridge, and ensure the External Bridge's plunger is in the up position. Then press the **CAL** button. When the READY screen is displayed, you may place your sample under the External Bridge plunger. Press the plunger down firmly to ensure it is in full contact with the sample. When testing, you may move the sample around under the plunger to test various areas.

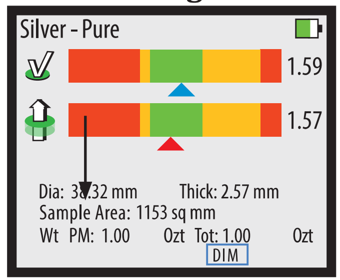
When measuring with the External Bridge, the **Basic** and **Thru Verification Modes** will display, just like using the onboard sensors.

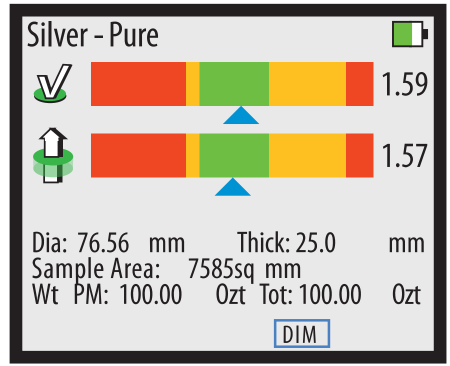
Note: The sample must be at least 12mm thick and at least 50mm wide to take an accurate measurement. The sample must be no more than 45mm thick. The sample must cover the entire black circle on the External Bridge platform throughout testing.





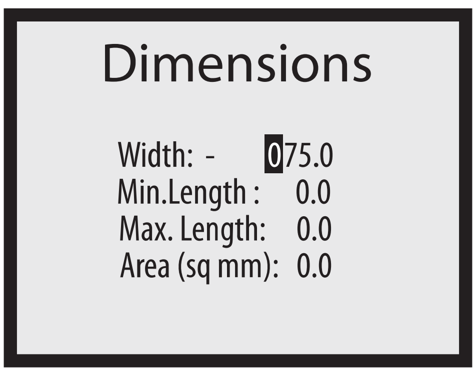
Plunger

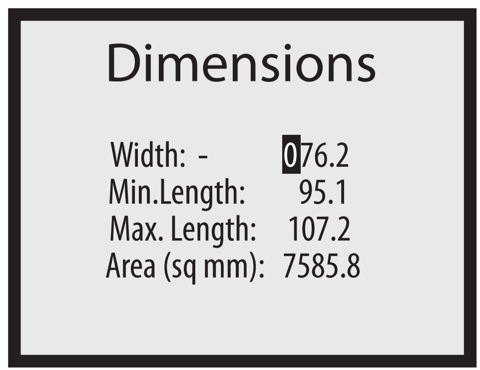


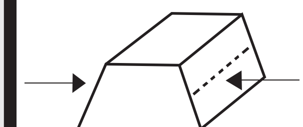


External Bridge Dimension Verification

The External Bridge can provide dimension verification, similar to the onboard sensors. Please refer to Page 12 for a basic overview. When verifying dimensions with the External Bridge, enter the measured weight, then, press the **MEASURE** button while the device is reading the sample. The device will display an initial DIMENSIONS screen. You must enter the measured width of the bar first for the device to calculate the expected minimum and maximum length of the sample. Use the onboard scale or calipers to measure the width. Once you have entered the width, press the **MEASURE** button again and the device will display the calculated minimum and maximum lengths for the sample. Confirm that your sample falls within that range.







Note: For bars with angled sides, measure width from the middle of each side.

Note: Refer to Page 9 for data entry.

Thickness Calibration

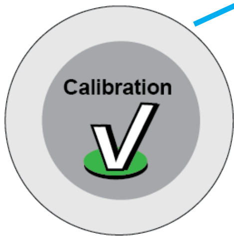
In the event that your PRO device's onboard sensors become miscalibrated, it may be important to re-calibrate the thickness measurement of your device. To do so, first power on the device and remove all samples. Once the device displays the READY screen, press and hold the **CAL** button for 3 seconds. The THICKNESS CALIBRATION screen will appear. Place the included calibration disk under the affected sensor, then press the **ENTER** button. Leave the calibration disk under the sensor until the screen returns to the MEASUREMENT screen.

With correct calibration, the calibration disk should be measured at about 1.57 - 1.62 mm thick. If your device reads the calibration disk as more than 0.1 mm thinner or thicker than expected, please contact us.

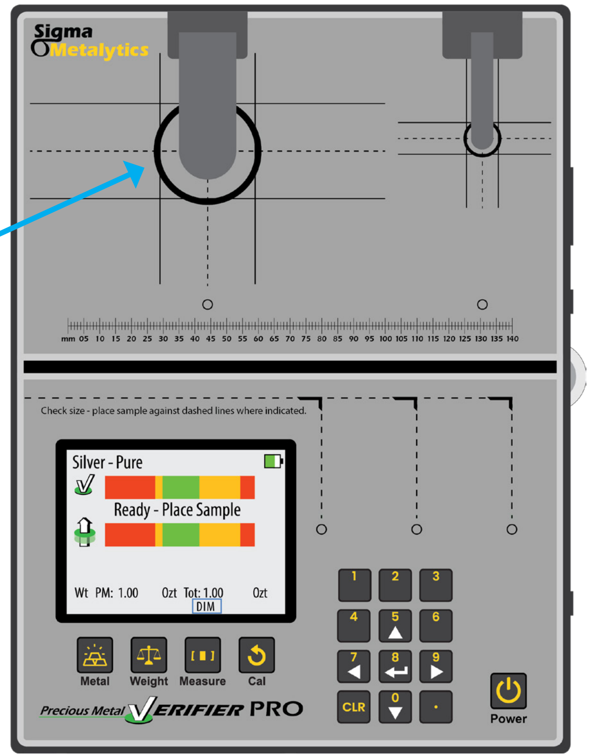
Note: This re-calibration is only rarely needed and should only be performed if the device is showing clear signs of a thickness mis-calibration. Because of the way the PRO electronically measures the thickness of coins based on the face of the coin, the PRO's indicated thicknesses for coins tends to be slightly thinner than the thickness specifications published by mints and retailers.

Thickness Calibration

Press and hold **CAL** for 3 Seconds



Place calibration disk under the sensor that needs to be calibrated.



Press **ENTER** to calibrate

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 PRO'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 ask for calibration 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 PRO 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 PRO'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 PRO can go for 6 - 8 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 at 530.562.4589 or shoot us an email at info@sigmametalytics.com

Warranty

Sigma Metalytics Precious Metal Verifier PRO 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 PRO 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

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MODEL #2701

Sigma Metalytics

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