Sigma Metalytics

Sensor Selection Guide 2024

Sensor Selection
Introduction

It is important to use the right sensor for your sample to get the accurate, reliable results on your PMV. Each sensor has minimum requirements that a sample must meet to achieve an accurate result. Additionally, it is important to use the most powerful sensor possible to ensure you are testing your sample as deep as possible.

The first step in determing which sensor to use is to determine what sample type you are testing. If you already know what sample type you are testing, you may skip this step. If you do not already know your sample type, refer to **Pg. 18** at the end of this document for Sample Type Determination steps.

If you know your sample type, go to the section for your device:

PMV Original: Model SM1401, SM1501, or SM1601 ⟶ **Section 1, Pg. 3**

PMV PRO: Model SM2601 or SM2701 ⟶ **Section 2, Pg. 8**

PMV PRO Mini: Model SM3001 ⟶ **Section 3, Pg. 13**

PMV Investor: Model SM3012 ⟶ **Section 3, Pg. 13**

PMV Original Sensor Selection
SM1401, SM1501, SM1601

The PMV Original has up to 4 available sensors:

Onboard Sensor: The main sensor in the device. Marked by a black circle on the face of the testing platform.

Small Wand: The smallest wand available for the device. The face of the Small Wand is marked with a small "S" and the Verifier symbol.

Large Wand: The middle-sized wand available for the device. The face of the Large Wand is marked with a blue sticker that says "Large" with the Verifier symbol.

Bullion Wand: The largest wand available for the device. The face of the Bullion Wand is marked with a gold sticker that says "Bullion" with the Verifier symbol.

Every PMV Original has the Onboard Sensor. Depending on your device, it may or may not have the other available Wands.

Go to the section for your sample type on the PMV Original:

Pure Silver ⟶ **Section 1.1, Pg. 4**

Pure Gold & Silver Alloys⟶ **Section 1.2, Pg. 5**

Gold Alloys, Platinum, & Palladium ⟶ **Section 1.3, Pg. 6**

Rhodium ⟶ **Section 1.4, Pg. 7**

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PMV Original Sensor Selection
SM1401, SM1501, SM1601

1.1 Use the below chart for Pure Silver samples.

Thickness (mm)	Diameter (in mm)			
	0.01 - 7.99	8 - 17.99	18 - 23.99	24+
0.01 - 0.39				
0.4 - 0.79		D*	C*D*	C*D*
0.8 - 0.99		D	CD	B*CD
1 - 3.29		D	CD	BCD
3.3 - 3.99		D	CD	A*BCD
4+		D	CD	ABCD

A	Bullion Wand
B	Onboard Sensor
C	Large Wand
D	Small Wand
*	use cal disk behind sample

Rule: always use the sensor of the letter closest to the start of the alphabet.

If the sample does not fall within the chart, it cannot be measured by the Original's sensors. If your device does not have a listed sensor, ignore that reference point.

Example:
A pure silver coin with a diameter of 26mm and a thickness of 2.5mm should be tested with the Onboard Sensor.

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PMV Original Sensor Selection
SM1401, SM1501, SM1601

1.2 Use the below chart for Pure Gold & Silver Alloy samples.

		Diameter (in mm)			
		0.01 - 7.99	8 - 17.99	18 - 23.99	24+
Thickness (mm)	0.01 - 0.39				
	0.4 - 0.79		D*	C*D*	C*D*
	0.8 - 1.09		D	CD	B*CD
	1.1 - 3.29		D	CD	BCD
	3.3 - 4.49		D	CD	A*BCD
	4.5+		D	CD	ABCD

A	Bullion Wand
B	Onboard Sensor
C	Large Wand
D	Small Wand
*	use cal disk behind sample

Rule: always use the sensor of the letter closest to the start of the alphabet.

If the sample does not fall within the chart, it cannot be measured by the Original's sensors. If your device does not have a listed sensor, ignore that reference point.

Example:
A pure gold coin with a diameter of 22mm and a thickness of 0.6mm should be tested with the Large Wand with the Calibration Disk behind the sample.

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PMV Original Sensor Selection
SM1401, SM1501, SM1601

1.3 Use the below chart for Gold Alloys, Platinum, & Palladium samples.

		Diameter (in mm)			
		0.01 - 7.99	8 - 17.99	18 - 23.99	24+
Thickness (mm)	0.01 - 0.99				
	1 - 1.69		D*	C*D*	C*D*
	1.7 - 2.39		D	CD	B*CD
	2.4 - 6.49		D	CD	BCD
	6.5 - 6.99		D	CD	A*BCD
	7+		D	CD	ABCD

A	Bullion Wand
B	Onboard Sensor
C	Large Wand
D	Small Wand
*	use cal disk behind sample

Rule: always use the sensor of the letter closest to the start of the alphabet.

If the sample does not fall within the chart, it cannot be measured by the Original's sensors. If your device does not have a listed sensor, ignore that reference point.

Example:
A Gold Eagle with a diameter of 32.7mm and a thickness of 2.87mm should be tested with the Onboard Sensor.

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1.4 Use the below chart for Rhodium samples.

		Diameter (in mm)			
		0.01 - 7.99	8 - 17.99	18 - 23.99	24+
Thickness (mm)	0.01 - 0.79				
	0.8 - 0.89		D*	C*D*	C*D*
	0.9 - 1.09		D*	C*D*	B*C*D*
	1.1 - 1.59		D	CD	B*CD
	1.6 - 3.69		D	CD	BCD
	3.7 - 6.29		D	CD	A*BCD
	6.3+		D	CD	ABCD

A	Bullion Wand
B	Onboard Sensor
C	Large Wand
D	Small Wand
*	use cal disk behind sample

Rule: always use the sensor of the letter closest to the start of the alphabet.

If the sample does not fall within the chart, it cannot be measured by the Original's sensors. If your device does not have a listed sensor, ignore that reference point.

Example:
A rhodium with a diameter of 19.5mm and a thickness of 0.85mm should be tested with the Larg Wand using the Calibration Disk behind the sample.

End of Section

PMV PRO Sensor Selection
SM2601, SM2701

The PMV PRO has up to 6 available sensors:

Small Onboard Sensor: The right-hand sensor on the device.

Large Onboard Sensor: The left-hand sensor on the device.

Small Wand: The smallest wand available for the device. The face of the Small Wand is marked with a small "S" and the Verifier symbol.

Large Wand: The middle-sized wand available for the device. The face of the Large Wand is marked with a blue sticker that says "Large" with the Verifier symbol.

Refiners Wand: The largest wand available for the device. The face of the Refiners Wand is marked with a gold sticker that says "Refiners" with the Verifier symbol.

External Bridge: The large, adjustable, external testing platform for the device.

Every PMV PRO has the two Onboard Sensors. Depending on your device, it may or may not have the other available Wands or External Bridge.

Go to the section for your sample type on the PMV PRO:

Pure Silver & Silver Alloys ⟶ **Section 2.1, Pg. 9**

Pure Gold ⟶ **Section 2.2, Pg. 10**

Gold Alloys, Platinum, & Palladium ⟶ **Section 2.3, Pg. 11**

Rhodium ⟶ **Section 2.4, Pg. 12**

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PMV PRO Sensor Selection
SM2601, SM2701

2.1 Use the below chart for Pure Silver & Silver Alloy samples.

		Diameter (in mm)						
		0.01 - 7.99	8 - 9.99	10 - 17.99	18 - 23.99	24 - 27.99	28 - 49.99	50+
Thickness (in mm)	0.01 - 0.39							
	0.4 - 0.49		F*	F*	E*F*	E*F*	E*F*	E*F*
	0.5 - 1.49		F*	AF*	AE*F*	AE*F*	AE*F*	AE*F*
	1.5 - 3.49		F	AF	AEF	AEF	ABEF	ABEF
	3.5 - 6.49		F	F	EF	EF	BEF	BEF
	6.5 - 12.49		F	F	EF	DEF	BDEF	BDEF
	12.5 - 44.99		F	F	EF	DEF	DEF	CDEF
	45+		F	F	EF	DEF	DEF	DEF

A	Small Onboard Sensor
B	Large Onboard Sensor
C	Ext. Bridge
D	Refiners Wand
E	Large Wand
F	Small Wand
*	use cal disk behind sample

Rule: always use the sensor of the letter closest to the start of the alphabet.

If the sample does not fall within the chart, it cannot be measured by the PRO's sensors. If the device does not have a listed sensor, ignore that reference point.

Examples:
A pure silver coin with a diameter of 32mm and a thickness of 2.5mm should be tested with the Large Onboard Sensor.

A 100oz silver bar with a width of 63mm and a thickness of 39mm should be tested with the External Bridge.

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2.2 Use the below chart for Pure Gold samples.

		Diameter (in mm)						
		0.01 - 7.99	8 - 9.99	10 - 17.99	18 - 23.99	24 - 27.99	28 - 49.99	50+
Thickness (in mm)	0.01 - 0.39							
	0.4 - 0.49		F*	F*	E*F*	E*F*	E*F*	E*F*
	0.5 - 1.49		F*	AF*	AE*F*	AE*F*	AE*F*	AE*F*
	1.5 - 3.49		F	AF	AEF	AEF	ABEF	ABEF
	3.5 - 7.49		F	F	EF	EF	BEF	BEF
	7.5 - 12.49		F	F	EF	DEF	BDEF	BDEF
	12.5 - 44.99		F	F	EF	DEF	DEF	CDEF
	45+		F	F	EF	DEF	DEF	DEF

A	Small Onboard Sensor
B	Large Onboard Sensor
C	Ext. Bridge
D	Refiners Wand
E	Large Wand
F	Small Wand
*	use cal disk behind sample

Rule: always use the sensor of the letter closest to the start of the alphabet.

If the sample does not fall within the chart, it cannot be measured by the PRO's sensors. If the device does not have a listed sensor, ignore that reference point.

Example:
A pure gold coin with a diameter of 22mm and a thickness of 0.6mm should be tested with the Small Onboard Sensor.

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PMV PRO Sensor Selection
SM2601, SM2701

2.3 Use the below chart for Gold Alloy, Platinum, & Palladium samples.

		Diameter (in mm)						
		0.01 - 7.99	8 - 9.99	10 - 17.99	18 - 23.99	24 - 27.99	28 - 49.99	50+
Thickness (in mm)	0.01 - 0.79							
	0.8 - 2.49		F*	AF*	AE*F*	AE*F*	AE*F*	AE*F*
	2.5 - 3.49		F	AF	AEF	AEF	ABEF	ABEF
	3.5 - 7.49		F	F	EF	EF	BEF	BEF
	7.5 - 12.49		F	F	EF	EF	BDEF	BDEF
	12.5 - 44.99		F	F	EF	EF	EF	CDEF
	45+		F	F	EF	EF	EF	EF

A	Small Onboard Sensor
B	Large Onboard Sensor
C	Ext. Bridge
D	Refiners Wand
E	Large Wand
F	Small Wand
*	use cal disk behind sample

Rule: always use the sensor of the letter closest to the start of the alphabet.

If the sample does not fall within the chart, it cannot be measured by the PRO's sensors. If the device does not have a listed sensor, ignore that reference point.

Example:
A Gold Eagle with a diameter of 32.7mm and a thickness of 2.87mm should be tested with the Small Onboard Sensor.

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2.4 Use the below chart for Rhodium samples.

		Diameter (in mm)						
		0.01 - 7.99	8 - 9.99	10 - 17.99	18 - 23.99	24 - 27.99	28 - 49.99	50+
Thickness (in mm)	0.01 - 0.59							
	0.6 - 0.79			A	A	A	A	A
	0.8 - 1.99		F*	AF*	AE*F*	AE*F*	AE*F*	AE*F*
	2.0 - 3.49		F	AF	AEF	AEF	ABEF	ABEF
	3.5 - 7.49		F	F	EF	EF	BEF	BEF
	7.5 - 12.49		F	F	EF	EF	BDEF	BDEF
	12.5 - 44.99		F	F	EF	EF	EF	CDEF
	45+		F	F	EF	EF	EF	EF

A	Small Onboard Sensor
B	Large Onboard Sensor
C	Ext. Bridge
D	Refiners Wand
E	Large Wand
F	Small Wand
*	use cal disk behind sample

Rule: always use the sensor of the letter closest to the start of the alphabet.

If the sample does not fall within the chart, it cannot be measured by the Original's sensors. If your device does not have a listed sensor, ignore that reference point.

Example:
A rhodium with a diameter of 19.5mm and a thickness of 0.85mm should be tested with the Small Onboard Sensor.

End of Section

PMV PRO Mini and PMV Investor Sensor Selection SM3001, SM3012

The PMV PRO Mini and PMV Investor each have up to 4 available sensors:

Onboard Sensor: The main sensor in the device with the adjustable arm.

Small Wand: The smallest wand available for the device. The face of the Small Wand is marked with a small "S" and the Verifier symbol.

Large Wand: The middle-sized wand available for the device. The face of the Large Wand is marked with a blue sticker that says "Large" with the Verifier symbol.

Bullion Wand: The largest wand available for the device. The face of the Bullion Wand is marked with a gold sticker that says "Bullion" with the Verifier symbol.

Every PMV PRO Mini and PMV Investor has the Onboard Sensor. Depending on your device, it may or may not have the other available Wands.

Go to the section for your sample type on the PMV PRO Mini and PMV Investor:

Pure Silver & Silver Alloys ⟶ **Section 3.1, Pg. 14**

Pure Gold ⟶ **Section 3.2, Pg. 15**

Gold Alloys, Platinum, & Palladium ⟶ **Section 3.3, Pg. 16**

Rhodium ⟶ **Section 3.4, Pg. 17**

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PMV PRO Mini and PMV Investor Sensor Selection
SM3001, SM3012

3.1 Use the below chart for Pure Silver & Silver Alloy samples.

		Diameter (in mm)				
		0.01 - 7.99	8 - 14.99	15 - 17.99	18 - 23.99	24+
Thickness (in mm)	0.01 - 0.39					
	0.4 - 0.49		D*	D*	C*D*	C*D*
	0.5 - 0.79		D*	AD*	AC*D*	AC*D*
	0.8 - 0.99		D	AD	ACD	ACD
	1 - 3.29		D	AD	ACD	ACD
	3.3 - 3.99		D	AD	ACD	AB*CD
	4 - 9.99		D	AD	ACD	ABCD
	10+		D	D	CD	BCD

A	Onboard Sensor
B	Bullion Wand
C	Large Wand
D	Small Wand
*	use cal disk behind sample

Rule: always use the sensor of the letter closest to the start of the alphabet.

If the sample does not fall within the chart, it cannot be measured by the PRO's sensors. If the device does not have a listed sensor, ignore that reference point.

Examples:
A pure silver coin with a diameter of 32mm and a thickness of 2.5mm should be tested with the Onboard Sensor.

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3.2 Use the below chart for Pure Gold samples.

Thickness (in mm)	Diameter (in mm)				
	0.01 - 7.99	8 - 14.99	15 - 17.99	18 - 23.99	24+
0.01 - 0.39					
0.4 - 0.49		D*	D*	C*D*	C*D*
0.5 - 0.79		D*	AD*	AC*D*	AC*D*
0.8 - 0.99		D	AD	ACD	ACD
1 - 3.29		D	AD	ACD	ACD
3.3 - 4.49		D	AD	ACD	AB*CD
4.5 - 9.99		D	AD	ACD	ABCD
10+		D	D	CD	BCD

A	Onboard Sensor
B	Bullion Wand
C	Large Wand
D	Small Wand
*	use cal disk behind sample

Rule: always use the sensor of the letter closest to the start of the alphabet.

If the sample does not fall within the chart, it cannot be measured by the PRO's sensors. If the device does not have a listed sensor, ignore that reference point.

Examples:
A pure gold coin with a diameter of 22mm and a thickness of 0.5mm should be tested with the Large Wand using the Calibration disk behind the sample.

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3.3 Use the below chart for Gold Alloys, Platinum, and Palladium samples.

		Diameter (in mm)				
		0.01 - 7.99	8 - 14.99	15 - 17.99	18 - 23.99	24+
Thickness (in mm)	0.01 - 0.79					
	0.8 - 0.99			A	A	A
	1 - 1.69		D*	AD*	AC*D*	AC*D*
	1.7 - 6.49		D	AD	ACD	ACD
	6.5 - 6.99		D	AD	ACD	AB*CD
	7 - 9.99		D	AD	ACD	ABCD
	10+		D	D	CD	BCD

A	Onboard Sensor
B	Bullion Wand
C	Large Wand
D	Small Wand
*	use cal disk behind sample

Rule: always use the sensor of the letter closest to the start of the alphabet.

If the sample does not fall within the chart, it cannot be measured by the PRO's sensors. If the device does not have a listed sensor, ignore that reference point.

Examples:
A Gold Eagle with a diameter of 32.7mm and a thickness of 2.87mm should be tested with the Onboard Sensor.

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3.4 Use the below chart for Rhodium samples.

		Diameter (in mm)				
		0.01 - 7.99	8 - 14.99	15 - 17.99	18 - 23.99	24+
Thickness (in mm)	0.01 - 0.59					
	0.6 - 0.79			A	A	A
	0.8 - 1.09		D*	AD*	AC*D*	AC*D*
	1.1 - 3.69		D	AD	ACD	ACD
	3.7 - 6.29		D	AD	ACD	AB*CD
	6.3 - 9.99		D	AD	ACD	ABCD
	10+		D	D	CD	BCD

A	Onboard Sensor
B	Bullion Wand
C	Large Wand
D	Small Wand
*	use cal disk behind sample

Rule: always use the sensor of the letter closest to the start of the alphabet.

If the sample does not fall within the chart, it cannot be measured by the PRO's sensors. If the device does not have a listed sensor, ignore that reference point.

Examples:
A rhodium with a diameter of 19.5mm and a thickness of 0.85mm should be tested with the Small Onboard Sensor.

End of Section

Sample Type Determination
All Models

There are multiple ways to determine what type of sample you are testing if you are unsure. First you must determine the alloy of your sample, then determine which category of alloy that sample falls into.

There are many ways to determine your sample's alloy:

Markings: Many coins and bars are stamped or marked with their purity or alloy type.

Published Specifications: Mints and retailers publish the coin and bar alloy specifications. You can find find the alloy specs on the mint's or retailer's website.

Reference Material: Coin books and reference books usually list the alloy type of the coin or bar listed.

Once you know the sample alloy, determine the category:

.999+ Silver ⟶ Pure Silver

Less than .999 Silver ⟶ Silver Alloy

.999+ Gold ⟶ Pure Gold

Less than .999 Gold ⟶ Gold Alloy

Pure Platinum, Pure Palladium ⟶ Platinum and Palladium

Pure Rhodium ⟶ Rhodium

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