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## Thomas ATA-3415

# Atago 3415 WM-7 Digital Wine Refractometer User Manual

Model: **ATA-3415** | Brand: **Thomas**

## 1. INTRODUCTION AND OVERVIEW

The Atago 3415 WM-7 is a portable, handheld digital refractometer designed for precise measurement of grape must concentration. This device is essential for wine growers, wineries, cooperatives, and grape must buyers, providing accurate readings in various scales relevant to winemaking.

It measures the refractive index of a liquid sample and converts it into concentration units, displaying results digitally. Key features include Automatic Temperature Compensation (ATC) for accurate readings regardless of ambient temperature, and External Light Interference (ELI) technology for reliable measurements even in bright conditions. The device is also Ingress Protection (IP)-64 rated, offering protection against dust and splashing water.



Figure 1: Atago WM-7 Digital Wine Refractometer. This image displays the device with its digital screen showing "12.3", and buttons labeled "START/OFF", "ZERO", and "SCALE". The screen also lists the seven measurement scales: Brix, TA 1990, TA 1971, German Oechsle (Oe), Oe, Babo (KMW), and Baume. The sample prism is visible on the right side.

## 2. SETUP

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### 2.1 Battery Installation

The Atago WM-7 operates on a 9V battery (included). To install or replace the battery:

1. Locate the battery compartment cover on the back of the unit.
2. Open the cover.
3. Insert the 9V battery, ensuring correct polarity.
4. Close the battery compartment cover securely.

### 2.2 Initial Calibration

Before first use and periodically thereafter, calibrate the refractometer with water to ensure accuracy.

1. Ensure the prism surface is clean and dry.
2. Apply a few drops of distilled water onto the prism.
3. Press the **ZERO** button. The display should show "0.0" or a value very close to it.
4. Wipe the prism clean with a soft cloth.

## 3. OPERATING INSTRUCTIONS

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### 3.1 Taking a Measurement

1. Ensure the prism surface is clean and dry.
2. Press the **START/OFF** button to turn on the device.
3. Apply a few drops of the grape must sample onto the prism. Ensure the sample covers the entire prism surface

without air bubbles.

4. Press the **START/OFF** button again to initiate measurement. The result will be displayed in approximately three seconds.
5. To switch between measurement scales (Brix, TA 1990, etc.), press the **SCALE** button. The current scale will be indicated on the display.
6. After measurement, clean the prism thoroughly with water and a soft cloth.

### 3.2 Measurement Scales

The WM-7 provides measurements in seven different scales:

- **Brix:** Measures the sugar content of the grape must.
- **Titre Alcoometrique (TA) 1990:** A scale for potential alcohol content based on 1990 standards.
- **Titre Alcoometrique (TA) 1971:** A scale for potential alcohol content based on 1971 standards.
- **German Oechsle (Oe):** A common scale used in Germany for must weight.
- **Oe:** Another representation of Oechsle.
- **Babo (KMW):** Klosterneuburger Mostwaage, a scale used in Austria for must weight.
- **Baume:** A hydrometer scale used for measuring the density of liquids.

### 3.3 Automatic Temperature Compensation (ATC)

The WM-7 features ATC, which automatically adjusts readings to a reference temperature, ensuring accurate results even when the sample temperature varies within the specified range (5 to 40 degrees C).

### 3.4 External Light Interference (ELI) Technology

ELI technology minimizes the impact of external light sources, allowing for accurate measurements near windows or outdoors without significant interference.

## 4. MAINTENANCE

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### 4.1 Cleaning the Prism

After each use, clean the prism surface immediately to prevent sample residue from drying and affecting future measurements. Use distilled water and a soft, lint-free cloth. Do not use abrasive materials or harsh chemicals.

### 4.2 Storage

Store the refractometer in its carrying case in a cool, dry place, away from direct sunlight and extreme temperatures. Ensure the prism is clean and dry before storage.

### 4.3 Battery Replacement

Replace the 9V battery when the low battery indicator appears on the display or if the device fails to power on. Refer to section 2.1 for battery installation instructions.

## 5. TROUBLESHOOTING

Problem	Possible Cause	Solution
Inaccurate readings	Dirty prism; improper calibration; insufficient sample volume; air bubbles in sample.	Clean prism thoroughly; re-calibrate with distilled water; ensure adequate sample volume; re-apply sample carefully to avoid bubbles.

<b>Problem</b>	<b>Possible Cause</b>	<b>Solution</b>
Device does not power on	Dead or improperly installed battery.	Replace 9V battery; check battery polarity.
Display shows error message	Measurement outside range; internal malfunction.	Ensure sample is within specified measurement range; if error persists, contact manufacturer support.

## 6. SPECIFICATIONS

<b>Parameter</b>	<b>Detail</b>
<b>Model Number</b>	ATA-3415
<b>Measurement Scales</b>	Brix, Titre Alcoometrique (TA) 1990, TA 1971, German Oechsle (Oe), Oe, Babo (KMW), Baume
<b>Measurement Scale Range</b>	Brix (ICUMSC): 0.0 to 45.0% TA 1990: 0.0 to 26.0% TA 1971: 0.0 to 25.0% German Oechsle (Oe): 0 to 240 degrees C Oe: 0 to 240 degrees C Babo (KMW): 0.0 to 40.0 degrees C Baume: 0.0 to 21.0 degrees C
<b>Minimum Detection Scale</b>	Brix (ICUMSC): 0.1% TA 1990: 0.1% TA 1971: 0.1% German Oe: 1 degree C Oe: 1 degree C Babo (KMW): 0.1 degree C Baume: 0.1 degree C
<b>Measurement Accuracy</b>	Brix (ICUMSC): $\pm 0.1\%$ TA 1990: $\pm 0.2\%$ TA 1971: $\pm 0.2\%$ German Oe: $\pm 0.1$ degrees C Oe: $\pm 0.1$ degrees C Babo (KMW): $\pm 0.2$ degrees C Baume: $\pm 0.2$ degrees C
<b>Sample Measurement Temperature Range</b>	5 to 40 degrees C (ATC)
<b>Ambient Temperature</b>	5 to 40 degrees C
<b>Light Source and Display Type</b>	Digital
<b>Power Source</b>	9V battery (included)

Parameter	Detail
Standards Met	Ingress Protection (IP)-64
Dimensions (H x W x D)	4 x 17 x 9 cm
Weight	300g

## 7. WARRANTY AND SUPPORT

Specific warranty details and direct support contact information are not provided within this manual. For warranty claims, technical support, or service inquiries, please refer to the documentation included with your purchase or contact Thomas Scientific directly. You may also visit the official Atago website for product information and support resources.