Product Guide

PENDOTECH
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Pendotech® PM2 Photometer: Accuracy Test and Troubleshooting Guide

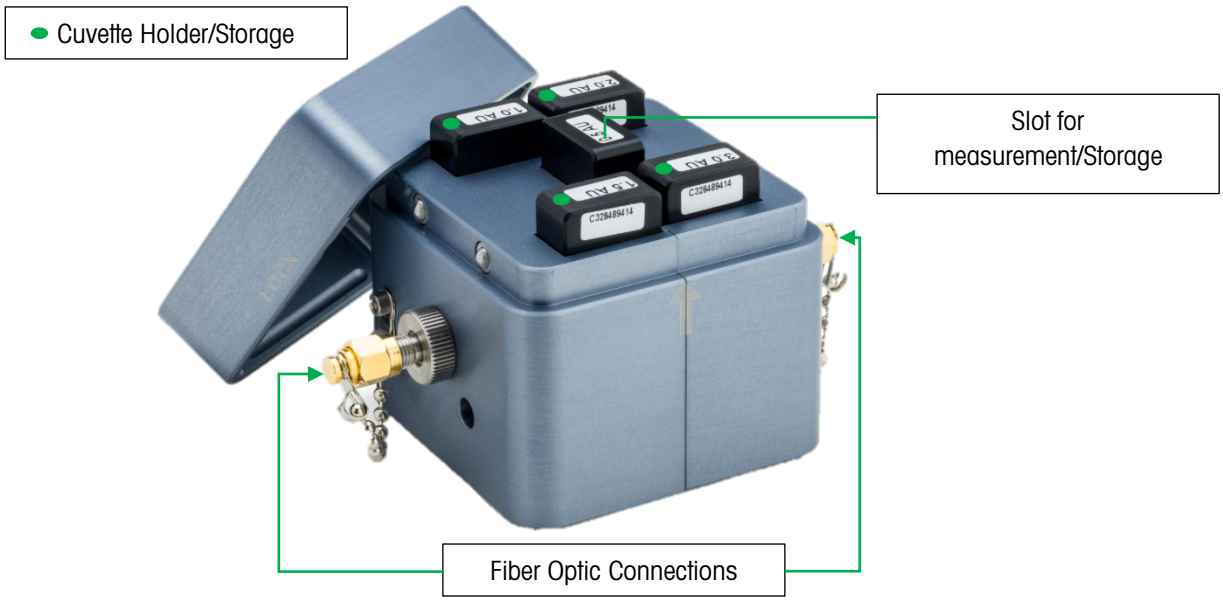
This comprehensive guide provides a step-by-step approach to testing the accuracy of your Pendotech PM2 UV/VIS/NIR Photometer, combining testing procedures and technical support into a single, seamless set of instructions.

Introduction

To ensure the accuracy of your Pendotech PM2 UV/VIS/NIR Photometer, it's essential to perform regular accuracy verification. This guide outlines the use of the Pendotech PM2 Photometer Calibration Kit and Standards to compare your photometer's readings against a qualified spectrometer. The provided standards are NIST traceable, and their actual absorbance values at specific wavelengths are detailed on the accompanying Certificate of Calibration.

Required Equipment

- 1x Pendotech PM2 Calibration Kit (Part No: 30849507)
- 5x UV filter standards with nominal values of 0.5AU, 1.0AU, 1.5AU, 2.0AU, and 3.0AU



- 1x Blank cuvette = (0 AU) empty slot within the calibration kit.
- Your Pendotech PM2 Photometer and its fiber optic cables.

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Accuracy Test Procedure

Setup

1. **Connect the PM2 Photometer:** Connect the Pendotech photometer to the Calibration Kit or flow cell stand using the fiber optic cables. Ensure the fiber optic connections are firmly hand-tight.
2. **System Stability:** For the most accurate readings, ensure your setup is static. Avoid moving the fiber cables and minimize vibrations. If you are working with a flow cell, ensure it is fixed in place.
3. **Ambient Light:** Block as much ambient light from the setup as possible, especially if you notice the reading is not saturating. Covering the flow cell, for instance, with aluminum foil can be an effective measure. Ensure the Calibration Kit lid is closed and locked.

Taring the Photometer

1. **Blank**: Remove the cuvette from the center slot and leave it empty, which will act as a (0 AU), and close the Calibration Kit lid.
2. **Perform Tare:** To ensure a clean tare, press and hold the tare button for a minimum of five seconds. This action zeros out any background absorbance. Remote taring and duration for tare can be adjusted via Modbus programming.

Measuring the Standards

1. **Measure and Record:** Sequentially insert the remaining cuvette standards (0.5AU, 1.0AU, 1.5AU, 2.0AU, and 3.0AU) into the holder. For each standard, record the absorbance output from the photometer.
2. **Compare to Certificate:** Compare the recorded photometer readings to the specific absorbance values listed on the Certificate of Calibration for each standard. Note that these certified values may differ from the nominal values printed on the cuvettes, as absorbance is wavelength dependent.

Calibration Kit connection to the PM2

Accuracy Specifications

The following tolerances apply to the nominal standard values:

NIST Traceable Standard (Nominal Value)	Tolerance
0.5 AU	±0.05 AU
1.0 AU	±0.05 AU
1.5 AU	±0.10 AU
2.0 AU	±0.10 AU
3.0 AU	±0.10 AU

Troubleshooting

If you encounter inaccurate readings, follow these steps:

1. **Check Cuvette Orientation:** Remove the cuvette, rotate it 180 degrees, and re-insert it into the holder.
2. **Clean the Cuvettes:** Use a lint-free cloth to gently wipe the cuvette lenses to remove any dust or debris. Properly store the cuvettes in their carrying case to prevent them from getting dirty.
3. **Verify Cable Connections**: Ensure that the fiber optic cables are hand-tight at all connection points.
4. **Re-Tare the System:** Insert the blank cuvette and perform the taring procedure again.
5. **Check for Bubbles (Flow Cell Users):** If using a flow cell, orient it vertically with the flow inlet at the bottom to help bubbles pass through. Visually inspect the flow cell for any bubbles or foam.
6. **Verify LED Function:** If the reading is stagnant at 4mA after a proper tare, it could indicate a dead LED. To test this, disconnect a fiber cable and wave it around; the reading should jump to 2 Au or 20 mA.
7. **Clean Optical Couplers:** If you suspect debris on the lenses of the optical couplers, first try cleaning with compressed air. If that doesn't work, use a cotton swab with methanol. As a last resort, an ultrasonic cleaner with alcohol may be used.
8. **Contact Support:** For further assistance, contact Pendotech at +1-609-799-2299 or tech.support@Pendotech.com.

Recalibration

Pendotech recommends an annual recalibration of your standards. The cuvettes (and Calibration Kit, if applicable) must be sent back to Pendotech for this service. Please gather your company and product information. Then, fill out the Request Service form at pendotech.com/support/ or email the same information to service@pendotech.com Ask about our annual service contracts which provide convenience and coverage.