

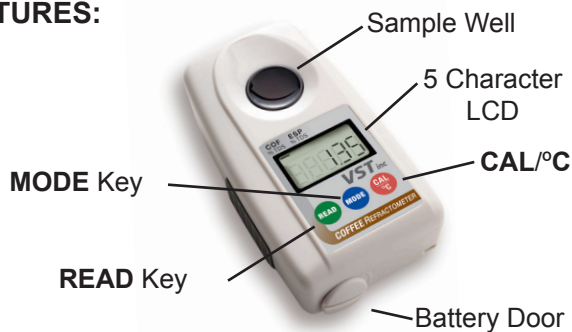
VST COFFEE & ESPRESSO Refractometer User Guide



INTRODUCTION:

Thank you for purchasing the VST Coffee Refractometer. It is our mission to provide a quality instrument and user friendly software designed to help you improve your coffee quality using virtually any brewing method.

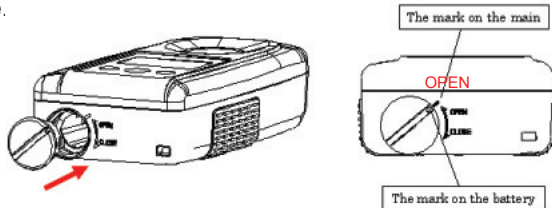
FEATURES:



SIMPLE SET UP:

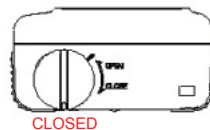
Install Batteries

1. Remove battery door by rotating it the counter-clockwise to the OPEN position until it stops and lift it off. **Do not apply excessive force.**



2. Install batteries, negative side into cavity first, positive facing outward.

3. Re-install battery door by rotating the cover in the clock wise direction until it is in the position shown below.



PRECAUTIONS:

1. Do not use Acetone, Acetone based products or other harsh solvents to clean the body or components of the refractometer.
2. Do not apply excessive force when removing or installing the battery door.
3. Do not store the refractometer in extremely warm or cold environments.
4. Do not leave batteries installed for excessive periods w/o use. **VST recommends batteries be replaced every six (6) months.** Note: If the instrument has been left in a warm or hot environment with batteries installed, it is recommended that the batteries be replaced immediately. **DAMAGE CAUSED BY BATTERY LEAKAGE IS NOT COVERED BY THE PRODUCT WARRANTY.**

CLEANING:

Cleaning of the measurement surface and well should be performed immediately after each sample reading. Never immerse the instrument in any liquid. When the measurement surface and well have been completely cleaned no residue should be present.

To properly clean the sample well and glass measurement surface use a mild soap and water solution. Alcohol pads (70% Isopropyl) may be used to remove oily or dried coffee residues followed by a distilled water rinse and then thoroughly dry with a soft lint and residue free cloth or paper product such as KimTech tissues.

To clean the refractometer's body use a soft cloth dampened with a mild cleaning solution and wipe it clean. Never use any harsh cleaning agents that will damage the instrument.

CALIBRATION USING DISTILLED OR DEIONIZED WATER:

1. Clean the measuring surface and well as outlined under "Cleaning".
2. Apply approximately 0.2-mL DI water to the measurement surface.
3. Allow the water sample to temperature equilibrate to the temperature of the instrument. (20-25 Deg C, approx 30-60 seconds).
4. Press and hold the "CAL" key until Display reads CAL.
5. While holding the "CAL" key press the "READ" key, then release both keys.
6. Successful calibration will be indicated by the word "END" being displayed.
7. Select Coffee % TDS **MODE**, press **READ**. DI water should read 0.00-0.03 % TDS.
8. Dry the sample well using KimTech or similar tissues.
9. See following pages for **Sample** and **Measurement** methods.

AUTOMATIC TEMPERATURE COMPENSATION:

Automatic temperature compensation corrects readings over a range of temperatures. As an example: Samples taken within the working temperature range of the instrument (15-30 Deg C) are corrected to a reference temperature of 20 degrees C. Temperature correction is essential because refractive index varies inversely with temperature. For this feature to be effective however it is necessary to allow the sample to temperature equilibrate to the ambient temperature of the prism.

Finally, for the most accurate and consistent results, coffee TDS readings should be taken within +/- 1 Deg C of the CALIBRATION temperature using distilled water.

Visit <http://vstapps.com/documentation/> for the latest technical support and product documentation.

ERROR CODES:

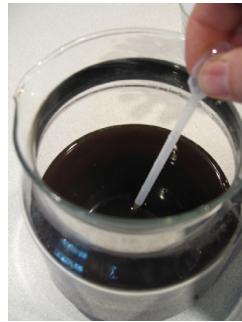
- Err01 - No sample present. Add sample.
- Err02 - Inadequate sample. Add additional sample.
- Err03 - Sample exceeds the refractive index reading range.
- Err04 - Sample temperature has not equilibrated. Allow more time for temperature equilibration.
- Err05 - Excessive ambient light. Cover sample well when reading.
- Err06 - Excessive ambient light. Cover sample well when reading.
- Err07 - Positive calibration error. Re-calibrate with distilled water.
- Err08 - Negative calibration error. Re-calibrate with distilled water.
- Err09 - Poor sample condition. Sample may not be able to be read.
- Err10 - Index of sample is out of range of instrument.

Err5X - For any errors in this series contact VST Tech Support.

SAMPLE METHOD: Coffee



Brew batch and stir. Use ExtractMoJo or MoJoToGo for proper portions.



Draw a 4-5 mL sample.



Transfer to cooling glass.

MEASUREMENT METHOD: Coffee



Allow 1 minute for sample to cool.



Transfer cooled sample to refractometer sample well.



Wait 30 seconds for sample to equilibrate, then press Read to take a % TDS measurement.

For sampling and measurement methods for **espresso**, or any **metal filtered coffee brewing method**:

See document entitled:

Syringe Filter Safety and Operating Instructions

This instrument is distributed exclusively by:

VST inc

www.mojotogo.us
support@mojotogo.us

<http://vstapps.com/documentation/>

Contact VST at:
support@mojotogo.us
for questions and warranty service

SPECIFICATIONS:

TDS Range:	Coffee: 0.00 - 9.99 % Espresso: 0.0 - 25.0 %
RI Range:	1.3330 - 1.4465 (Coffee+ Model Only)
Accuracy	Typical Warranted Coffee: +/- 0.06 % TDS +/- 0.12 % TDS Espresso: +/- 0.2 % TDS +/- 0.3 % TDS
Resolution:	Coffee: 0.01 % TDS; Espresso: 0.1% TDS
ATC:	15-30 Deg C
Calibration:	Distilled Water
Prism:	Glass
Illumination:	589nm LED
Dimensions:	54 x 27 x 100 mm / 2.13 x 1.06 x 3.9 inches
Power:	Qty 2 - AAA Alkaline Batteries, included
Battery life:	10,000 readings, Auto-Off Sleep Mode
Ratings:	IP65 Dustproof/Water Resistant, CE, RoHS, and WEEE compliant.
Reading Modes:	Coffee % TDS = Percent Total Dissolved Solids Espresso % TDS = Percent Total Dissolved Solids Additional Scales on Coffee (+) Model : TC-nD = Refractive index temperature corrected to 20 ° C for Coffee nD & °C = Refractive Index and Temperature
Warranty:	One year against manufacturing defects. Evidence of tampering voids warranty. DAMAGE FROM LEAKING BATTERIES VOIDS ALL WARRANTIES.