

VST COFFEE Refractometer User Guide



INTRODUCTION:

VST, Inc. would like to extend our appreciation to you for purchasing this coffee refractometer. It is our mission to provide a quality product at a very competitive price to our end users and we feel this instrument will prove its value time and again to you.

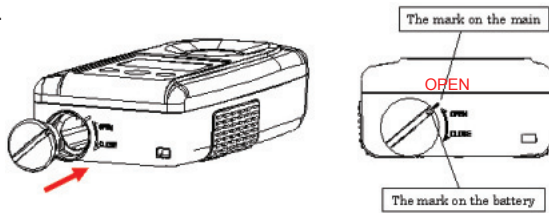
FEATURES:



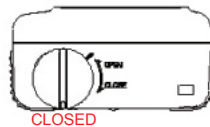
SIMPLE SET UP:

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 when cleaning the body or it's components.
2. Using strong solvents such as N-Nimethylacetamide, cresols, phenols and other tar acids should be avoided, Tetrahydrofuran or some other lacquer thinners and their components will deteriorate the prism seal and should not be used.
3. Do not apply excessive force when removing or installing the battery door.
4. Do not store refractometer in extremely warm or cold environments.

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, Isopropyl Alcohol or Methanol followed by a distilled water rinse and then thoroughly dry with a soft lint and residue free cloth or a product such as KimTech tissues.

To clean the refractometer's body use a soft cloth with a mild cleaning solution like window cleaner applied to it and wipe it clean. Never use any harsh cleaning agents that will damage the instrument. Never use any harsh solvents on the instrument that will adversely affect the material that it is made from.

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 1-2 minutes).
4. Press and hold the "CAL" key for at least 5 seconds.
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. Dry the sample well using KimTech or similar tissues.
7. Select nD using the Mode Key, and take a measurement. Check the nD at Temperature indicated against the DI Water Table, below. If the nD does not agree, clean and dry the sample well and glass, and place another sample of DI water, and wait 1-2 minutes to equilibrate, then CALIBRATE. When END is reached, take another nD reading. The reading should agree to the table, within +/- 0.0002 nD for the temperature indicated.

DISTILLED WATER REFRACTIVE INDEX TABLE:

Temp	Refractive INDEX for Distilled Water as a function of TEMP (in tenths °C) at 589.3 nm									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
15	1.3334	1.3334	1.3334	1.3334	1.3334	1.3334	1.3334	1.3334	1.3333	1.3333
16	1.3333	1.3333	1.3333	1.3333	1.3333	1.3333	1.3333	1.3333	1.3333	1.3333
17	1.3332	1.3332	1.3332	1.3332	1.3332	1.3332	1.3332	1.3332	1.3332	1.3332
18	1.3332	1.3332	1.3331	1.3331	1.3331	1.3331	1.3331	1.3331	1.3331	1.3331
19	1.3331	1.3331	1.3331	1.3331	1.3330	1.3330	1.3330	1.3330	1.3330	1.3330
20	1.3330	1.3330	1.3330	1.3330	1.3330	1.3329	1.3329	1.3329	1.3329	1.3329
21	1.3329	1.3329	1.3329	1.3329	1.3329	1.3328	1.3328	1.3328	1.3328	1.3328
22	1.3328	1.3328	1.3328	1.3328	1.3328	1.3328	1.3327	1.3327	1.3327	1.3327
23	1.3327	1.3327	1.3327	1.3327	1.3327	1.3327	1.3327	1.3326	1.3326	1.3326
24	1.3326	1.3326	1.3326	1.3326	1.3326	1.3325	1.3325	1.3325	1.3325	1.3325
25	1.3325	1.3325	1.3325	1.3325	1.3325	1.3324	1.3324	1.3324	1.3324	1.3324
26	1.3324	1.3324	1.3324	1.3324	1.3323	1.3323	1.3323	1.3323	1.3323	1.3323
27	1.3323	1.3323	1.3323	1.3322	1.3322	1.3322	1.3322	1.3322	1.3322	1.3322
28	1.3322	1.3322	1.3321	1.3321	1.3321	1.3321	1.3321	1.3321	1.3321	1.3321
29	1.3321	1.3320	1.3320	1.3320	1.3320	1.3320	1.3320	1.3320	1.3320	1.3319
30	1.3319	1.3319	1.3319	1.3319	1.3319	1.3319	1.3319	1.3318	1.3318	1.3318

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. This feature is used in lieu of temperature control of the prism and sample. 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 +/- 2 Deg C of the CALIBRATION temperature using distilled water.

This instrument is distributed exclusively by:

VST inc
www.mojotogo.us
support@mojotogo.us

SAMPLE METHOD:

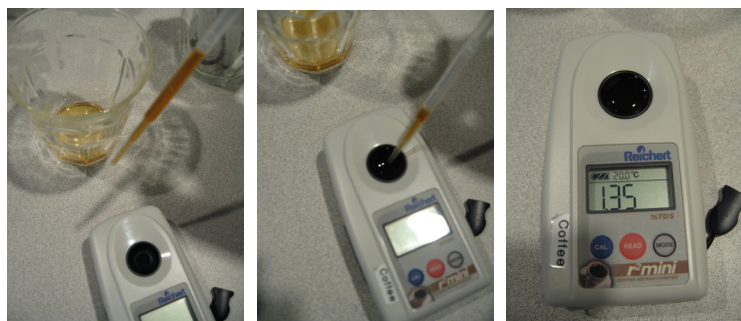


Brew batch and stir.

Draw a 4-5 mL sample.

Transfer to cooling glass.

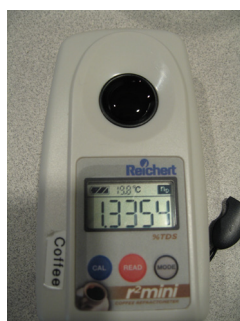
MEASUREMENT METHOD:



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.



Press Mode to change measurement scale to nD. Press Read for native mode measurement as shown: 1.3354 nD at 19.8°C.

SPECIFICATIONS:

- RI Range:** 1.3330 - 1.4465
- TDS Range:** 0.00 - 9.99 %
- Accuracy:** Typical +/- 0.06 % TDS
Warranted +/- 0.12 % TDS
+/- 0.0002 nD
- Resolution:** 0.01 % TDS
0.0001 nD, 0.1°C
- ATC:** 20 Deg C for TDS, 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 Batteries, included
- Battery life:** 10,000 readings, Auto Off Sleep Mode
- Ratings:** IP65 Dustproof/Water Resistant, CE, RoHS, and WEEE compliant.
- Reading Modes:** % TDS = Percent Total Dissolved Solids coffee.
TC-nD = Refractive index temperature corrected to 20 degrees C.
nD = Refractive index and Temperature
- Warranty:** One year against manufacturing defects. Evidence of tampering voids warranty. Contact VST directly for warranty service.

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 Inc for technical assistance.

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