



### Instrument Use

### **Power On and Calibration**

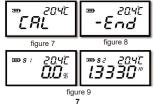
One press of the power key will power on the instrument (figure 6). In order to maximize battery life the refractometer is designed to shut itself off after 1 minute of inactivity.



figure 6

A zero calibration should be performed daily to achieve optimal accuracy.

- Clean and dry the sample well. Place a 4-5 drops of clean, distilled water in the sample well
- Close the prism cover to prevent stray light from affecting the calibration.
- · Press and hold the ZERO key for two seconds until "CAL" is displayed, then release (figure 7)
- "CAL" will flash repeatedly for 10 seconds. Press ZERO once again while "CAL" flashes to perform the calibration. During this time it is crucial to not open the prism cover. If ZERO is not pressed again then the calibration will not be performed.
- The display will indicate "-END" when finished calibrating (figure 8)





MDX-Series Digital Refractometer

Removable Rubber Grip

**Removable Prism Cover** 

AAA, 1.5V Battery (1ea.)

Hardshell Storage Case

Screwdriver (not shown)

· At this point the display will change back

to the default screen showing the active

scale and instrument temperature (figure

9). If the instrument does not read distilled

water with the values shown below then

clean the prism and recalibrate with fresh

**Distilled Water** 

0.0% Brix ±0.2%

1 3330RI +0 0003RI

Repeatedly press and release the SCALE key to

toggle through all available scales. The display

will indicate which scale position is currently

You can find descriptions and ranges for

the available scales on the bottom of the

instrument, the storage case label, and this user

Ensure that the sample well is clean and dry.

the well and close the prism cover.

Place 4-5 drops of your liquid sample into

Press the READ key once and the sample

reading will display on the screen (figure

10). Additional readings can be made by

Clean and dry the sample well when

finished. The prism must be cleaned and

20.40 15

 $\Box$  1%

fiaure 11

pressing the READ key again if desired.

dried before testing another sample.

8

2040

**D**. 1%

figure 10

distilled water

Scale Selection

auide.

active- S01, S02, S03, ... (figure 9).

**Taking Measurements** 

Single Readings:

51

Disposable Pipet

Included Parts

1.

2.

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4.

5.

6.

7.

## Introduction

The VEE GEE MDX-Series portable digital refractometers are a modern design utilizing advanced opto-electronic components to provide years of fast, accurate liquid testing with high reproducibility.

The **MDX-Series** models are designed to be simple to use with little training necessary; regardless though, it's highly recommended that users read this User Guide in it's entirety before using the instrument for the first time

At any point if you have any questions please contact our support team at: 800-423-8842

techsupport@veegee.com

### Warrantv

VEE GEE digital refractometers are warranted to be free from defects in material and workmanship for a period of one year from the date of purchase. During this period the VEE GEE Service Center will, at their option and without charge, either repair or replace any part found to be defective in materials and workmanship. Instrument Display

All warranty work shall be performed by the VEE GEE Service Center. Contact your dealer or the VEE GEE Service Center for troubleshooting the issue and to receive a Return Authorization, if necessary, for the return of your instrument for repair. The party returning the product must prepay all postage, shipping, transportation, packaging, duties & taxes, and delivery costs to the VEE GEE Service Center. This warranty is subject to the following limitations and will not apply if:

There is lack of proof of purchase date and place of purchase. The warranty is not assignable or transferable.

2) The damage is due to normal wear (including the prism). misuse -, ... abuse, negligence, or any other cause not due to manufacturing of the product.

3) The serial number is altered or obliterated; or unauthorized repair or replacement of partts by any party other than the VEE GEE Service

This warranty expressly excludes transportation damage and readiustment. In no case shall VEE GEE Scientific LLC be liable to the Reagustment. In no case shall VES dEE scientific LLL De lable to the Buyer or any person for any special indirect, indirect and the sequential damage whether claims are based in contract or otherwise with respect to or arising out of product furnished hereunder. For goods manufactured by any third party VEE GEE Scientification warranty is limited to the terms of the warranty by the supplier of the

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### **Continuous Loop Readings:**

Pressing and holding the READ key for 2 seconds will start the continuous loop function. In this mode the refractometer will make 15 sequential reads spaced about 1 second apart. then display an average of all readings as the last reading. During this function the scale indicator will change to a counter and count down from 15 with each read (figure 11).

If unexpected results are experienced while testing your samples:

- Replace the battery with a new AAA 1.5V battery.
- particulate matter; filter if necessary.
- well, suspended solids may settle to the bottom and affect the readings.
- temperature than the instrument and/or environment it is best to wait a few seconds before pressing the READ key to allow the sample to

- causing erroneous readings.
- Use distilled water or diluted isopropanol with a soft cloth or tissue to clean the prism surface and sample well.
- Use a mild detergent to clean the instrument body; solvents are not recommended.
- to completely clean the sample well and prism between each reading and be careful to not get any of the sample on the plastic instrument housing 9

# VEE GEE MDX-Series

Prism Surface

Sample Well

Control Keys

5. Battery Compartment Cover

Removable Rubber Grip

Battery Level Indicator

Percent or Permille Scale Indicator

6. Active Scale Indicator / Continuous Read Timer

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Refractive Index Scale Indicator

Temperature Display (°C or °F)

Reading Display

6. Removable Prism Cover

3. LCD Display

2.

Δ

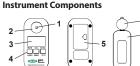
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2

3

4.

5.



- **m s** 888 **| 888 |** 8

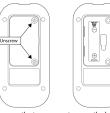
**\8888**%



Battery Level

Expected battery life: 1000+ reads

### **Battery Compartment**



- Unscrew the two screws to open the battery compartment
- Place AAA, 1.5V (1ea.) battery into the battery slot. Pay careful attention to ensure proper battery polarity when inserting.

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, гачс <b>НН</b>	™s; 20.4C <b>LLL</b>
figur	e 13
: нннг	ms: LLLĽ

	ooulo i Huligo	0.0 00.070 Blix
	Scale 1 Resolution	0.1% Brix
	Scale 1 Accuracy	±0.2% Brix
	Scale 2 Range	0.0 - 22.0% PA (% v/v)
	Scale 2 Resolution	0.1% PA
	Scale 2 Accuracy	±0.2% PA
	Scale 3 Range	0 - 150° Oechsle
	Scale 3 Resolution	1° Oechsle
	Scale 3 Accuracy	±2° Oechsle
	Scale 4 Range	0.0 - 25.0° KMW (Babo)
	Scale 4 Resolution	0.1° KMW

±0.2° KMW

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Mode

Catalog Number

Scale 1 Range

Scale 4 Accuracy

# MDX-401 Model 48401 ATC Range 0.0 - 50.0% Brix IP Rating Wavelength Sample Cell 6 v/v) Calibration Solution

Min. Sample Volume	0.3mL
Battery	1 X AAA, 1.5V
Dimensions	121 x 58 x 25mm
Weight	90g
Warranty	1-Yr Parts & Labor

MDX-40

0-40°C 32-104°F

IP65: body

589.3nm LED

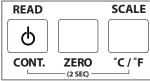
Stainless Steel

Distilled Water

IP67: detecting unit



**Control Kevs Display Indicator** 



### READ | Power On | CONT.

- Press once and release to power on. Press once and release while powered on to take reading.
- Press and hold for 2 seconds while powered on to initiate continuous read loop function.

### ZERO

Press and hold for 2 seconds then press once again within 10 seconds to perform zero calibration procedure.

### SCALE | °C / °F

- Repeatedly press and release to toggle through all available scales.
- Press and hold for 2 seconds to toggle between °C and °F temperature display.

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# Troubleshooting

Ensure that you are closing the prism cover when

- taking readings and during calibration. Recalibrate with clean, fresh distilled water and **be** sure that you are pressing the ZERO key once again
- while CAL is flashing on display. Fully clean the sample well and prism.
- Ensure that you are working with highly
- homogenous samples and that it is free of large Keep in mind that as a sample sits in the sample
- When testing samples that are of a different
- acclimate properly

# Care and Cleaning

- It is important to clean the sample well completely when finished using and between samples to prevent solids from building up on the prism and
- When testing corrosive or acidic samples it is crucial

Error Codes

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			_
		Scale 2 Reso	5
figur	e 13	Scale 2 Accu	"
нт		Scale 3 Rang	ge

figure 14

Error Code	Description
A01	Calibration Temperature Error: Operating temperature must be 0-40°C. (figure 12)
A02	Calibration Sample Error: Use clean distilled water only for zero calibration.
A03	Hardware Failure: Contact our Technical Support department.
HHH / LLL (sample)	Sample High/Low Value Error: Sample above or below measur- able range. (figure 13)
HHH / LLL (temperature)	Temperature High/Low Value Error: Environment above or below acceptable range. (figure 14)

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