Operation Manual

Digital Refractometer

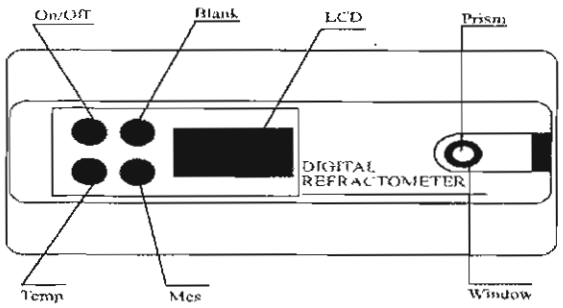
Digital Refractometers for Brix are developed for working with sugar related liquids (fruit juices, soft drinks, wine), help monitor and control sugar concentrations in foods and beverages. Whether users are checking the "ripeness" of fruit in the field, verifying product quality after harvesting, or controlling concentrations during processing and packaging, refractometers provide critical information to ensure product quality. But, it is also commonly used for controlling the concentration of various cutting fluids, industrial lubricants, etc...). This instrument is equipped with an Automatic Temperature Compensation System making it ideal for field use.

Ⅰ. Product Specification

No.	Model	Scale	Range	Resol.	Accur.
1	MTD-045	Brix	0~45%	0.1%	±0.2%
2	MTD-045nD	Brix	0~45%	0.1%	±0.2%
		Refractive Index	1.3330-1.4098	0.0001	±0.0003
3	MTD-065	Brix	28~65%	0.1%	±0.2%
4	MTD-065nD	Brix	28~65%	0.1%	±0.2%
		Refractive Index	1.3770-1.4535	0.0001	±0.0003
5	MTD-092	Brix	58~92%	0.1%	±0.2%
6	MTD-092nD	Brix	58~92%	0.1%	±0.2%
		Refractive Index	1.4370-1.5090	0.0001	±0.0003
7	MTD-3528	Brix	0~35%	0.1%	±0.2%
	DREF45-121	Salinity	0~28%	0.1%	±0.2%
		Refractive Index	1.3330-1.3900	0.0001	±0.0003
8	MTD-033	MASS s/v	0~35%	0.1%	±0.2%
		Vol AP	0~22%	0.1%	±0.2%
		Oe	0~150	1.0	±1.0
		KMW	0~25	0.1	±0.2

- Temperature Measurement Range：0℃~40℃（32~104℉）
- Precision of Measurement temperature：±1℃(2℉)
- Measurement temperature Resolution：0.1℃
- Operation Temperature：0~35℃（32~90℉）
- Storage temperature：0~50℃ （32~122℉）
- Dimension ：185×59×45mm
- Weight：230g
- Power Supply：1battery（9v）
- Power Consumption：More than 2000-times operation per battery
- Automatic Temperature Compensation
- Automatic Shut Off
- Conversion between Centigrade and Fahrenheit Degree
- Alarm of Low Voltage

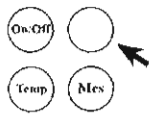
Ⅱ. Structure Drawing:



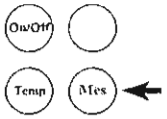
III. Operation Steps:

A. Original Point Setting（Usually can pass over this step）

1. Clean the prism window. Drop standard liquids to fill the prism window.
   (The standard liquid of MTD-065 and MTD-065nD is 30% Brix solution or the solution with nD1.3812; The standard liquid of MTD-092 and MTD-092nD is 60% Brix solution or the solution with nD1.4419. The standard liquid of other Models is distilled water.)
2. Press "CAL" button for five seconds till it twinkles "rEF" on LCD. Within 10 second after display "rEF", press "Mes" button for five seconds. The instrument starts to set Original Point. After Original Point Setting is finished, "End" will be displayed on LCD.



5 seconds

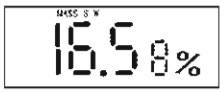


5 seconds

B. Measurement

1. Clean the prism window. Drop liquid sample to fill the prism window

2. Press "Mes" button



C. Conversion of Centigrade / Fahrenheit Scales

1. Turn it off.
2. Synchronously press "CAL" button and "Mes" button. Turn it on by pressing On/Off button.
3. Repeat step 1-2 to set to the other scale. (The chosen scale will be stored no matter if power off.)

IV. Other Operation

1. Installation Battery

In the case of no battery or low battery with alert of "(((" on the upper left of LCD, you should install or replace the battery. Open the battery cover on the back of the instrument, install a battery or replace the old battery with a new one.

2. Power On and Off

Press the "On/Off" button to turn it on or off. Temperature in Centigrade will display when power on. The instrument will turn off automatically if there is no any operation in three minutes.

3. Measurement of Temperature

Temperature can be displayed at any time by press the button during measurement. The conversion of Fahrenheit and Centigrade can be made by pressing "Temp" button.

V. Precautions

1. Don't expose the instrument to low, high temperature and sun light for long time, to avoid LCD losing effectiveness.
2. Because the instrument is very precise, violent shocks are prohibited.
3. To avoid damage, don't disassemble and assemble the instrument or change the inner circuit and parts.
4. Zero-setting should be implemented strictly according to instrument.
5. Be sure to clean the prism surface and window of stage before and after every measurement.
6. To avoid the accuracy is affected by evaporation, be sure to implement measurement immediately after dropping liquid sample on window of stage.
7. It can cause wrong result if keep measuring under low voltage.
8. Don't use it under the strong light (as sunlight, lamp etc.)
9. Don't use the instrument in the humid and corrosive environment.
10. Prevent from liquid into battery house.