

# Waterproof Digital Refractometer

**300058**

SPER  
SCIENTIFIC

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Environmental Measurement Instruments

## **Waterproof Digital Refractometer 300058**

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## **INTRODUCTION**

This Sper Scientific Waterproof Digital Refractometer measures concentrations in Brix, 5 additional sugar scales, and Refractive Index with laboratory accuracy. The small, light, meter offers digital precision for field use. A protective IP67 waterproof case and a scratchproof sapphire lens ensure long-lasting durability and reliability.

The meter is powered by a rechargeable, long-life lithium-ion battery which provides 50,000 tests on a single charge. Simple one-button calibration using distilled water ensures accurate readings.

## **MATERIALS SUPPLIED**

- Refractometer
- One lithium-Ion battery
- DC Power Adapter
- Distilled Water
- Transfer pipet
- Instruction Manual
- Carrying Case

## **FEATURES**

- Measures Brix (sucrose), refractive index, dextran, fructose, glucose, lactose, and maltose
- Covers the entire 0 ~ 95% Brix range
- Displays sample temperature followed by measurement result
- IP67 Waterproof, rugged exterior
- Scratch proof sapphire lens
- Rechargeable battery
- Low battery indicator
- DC power adapter
- Automatic shutoff

## POWER SUPPLY

The meter is powered by one rechargeable lithium-ion battery. An icon in the upper-right corner of the LCD indicates the level of battery power available:



75%-100% power



40%-75% power



15%-40% power



Less than 15% power. (This icon will flash)

The DC adapter included plugs into the port on the left side of the meter. This both provides an alternate power supply and recharges the battery.

### Automatic Shutoff

The power will automatically shut off if the meter is not used for 3 minutes.

## FRONT PANEL DESCRIPTION



1. POWER - Power on/off
2. READ - Read measurements /select scale
3. CAL - Calibrate meter
4. LENS COVER

## LCD DISPLAY



1. S 1 - Current scale number
2. BATTERY ICON - Battery power level
3. DISPLAY - Displays temperature and readings

## CALIBRATION

Use distilled water (refractive index 1.3330 ~ 1.3340) to calibrate the meter.

1. With the meter turned off, place a few drops of distilled water on the lens.
2. Close the lid to cover the lens.
3. Press **POWER** to turn the meter on.
4. The temperature of the distilled water appears on the LCD.
5. Press and hold **CAL** for 2 seconds to enter Calibration Mode. "CAL" will be displayed to indicate that calibration is occurring.
6. When calibration is finished the meter returns to Measurement Mode and " - - - " is displayed on the LCD.



## MEASUREMENT PROCEDURES

After calibration you can remove the distilled water from the lens and begin measurement.

**Note...** Use a clean, lint-free cloth or tissue to remove solutions from the lens.

1. With the meter turned off, place a few drops of solution on the lens.
2. Press **POWER** to turn the meter on.
3. The temperature of the solution appears on the LCD.
4. Close the lid to cover the lens.
5. Press **Read** to view the measurement on the LCD.
6. To change scales, press and hold **Read** for 2 seconds until the scale number changes. Repeat to cycle through the available scales.

### Scale Indicator & Name

S1	Brix
S2	Refractive Index
S3	Dextran
S4	Fructose
S5	Glucose
S6	Lactose
S7	Maltose

7. Press **Read** if desired to repeat the measurement.

## MEASUREMENT ERRORS

Certain conditions can cause an error code to appear on the LCD:

### Error Code & Cause

- - - There is no solution on the lens
- HHH The measurement is above the upper limit
- LLL The measurement is below the lower limit

## SPECIFICATIONS

Measurement Scale	Range	Resolution	Accuracy
Scale 1 – Brix	0.0 ~ 95%	0.1%	± 0.2%
Scale 2 – Refractive Index	1.3330 ~ 1.5320nD	0.0001nD	±0.0003nD
Scale 3 – Dextran	0.0 ~ 10.6%	0.1%	±0.2%
Scale 4 – Fructose	0.0 ~ 68.9%	0.1%	±0.2%
Scale 5 – Glucose	0.0 ~ 59.9%	0.1%	±0.2%
Scale 6 – Lactose	0.0 ~ 16.5%	0.1%	±0.2%
Scale 7 – Maltose	0.0 ~ 15.6%	0.1%	±0.2%
Temperature	0.0 °C ~ 40.0 °C		±0.5 °C
ATC Range	0.0 °C ~ 40.0 °C		±0.5 °C
Sample Capacity	0.3 mL ~ 1 mL		
Measurement Time	0.5 ~ 1.0 seconds		
Waterproof Rating	IP67		



## **WARRANTY**

Sper Scientific warrants this product against defects in materials and workmanship for a period of **five (5) years** from the date of purchase, and agrees to repair or replace any defective unit without charge. If your model has since been discontinued, an equivalent Sper Scientific product will be substituted if available. This warranty does not cover probes, batteries, battery leakage, or damage resulting from accident, tampering, misuse, or abuse of the product. Opening the meter to expose its electronics will void the warranty.

To obtain warranty service, ship the unit postage prepaid to:

SPER SCIENTIFIC LTD.  
8281 E. Evans Rd., Suite 103  
Scottsdale, AZ 85260

The defective unit must be accompanied by a description of the problem and your return address. Register your product online at [www.sperwarranty.com](http://www.sperwarranty.com) within 10 days of purchase.