

PORTABLE DIGITAL REFRACTOMETER



Portable Digital Refractometer – ToronDR™ P

A Digital Refractometer in the ToronDR™ P is a compact handheld Refractometer built for fast concentration and refractive-index checks across food, beverage, health-care, medical, automotive, and other routine field applications. The ToronDR™ P is using a linear CMOS sensor for high precision and repeatability, with a waterproof and anti-shock exterior shell designed for portable use.

This ToronDR™ P is not a single-scale product. It is a portable digital platform with multiple application-specific models, including Brix, sugar-specific concentration, soybean milk, salinity, honey, wine, and beer variants. That makes ToronDR™ P suitable for distributors or buyers who want one rugged handheld format across several industries.

Portable Digital Refractometer – ToronDR™ P is a digital handheld refractometer family designed for quick daily testing where portability, direct numerical readout, and durability matter. Unlike manual optical refractometers that require the operator to interpret a light/dark boundary through an eyepiece, the Portable Digital Refractometer platform uses a digital sensor-based approach and provides direct values for the configured scale and refractive index.

The Portable Digital Refractometer for broad use across daily health care, food and beverage procurement, medical care, automotive, and other industries. Its compact body, waterproof and anti-shock shell, and model-specific scale lineup make it practical for both general QC and portable field checks.

APPLICATIONS

Portable Digital Refractometer – ToronDR™ P Application

- Food and beverage concentration checks: the Portable Digital Refractometer includes multiple Brix and sugar-oriented models, including ToronDR™ P 101 for 0.0–60.0% Brix, Model 102 for 0.0–95.0% Brix, plus specialty models for dextran,

fructose, glucose, lactose, and maltose. This makes the platform suitable for beverage QA, ingredient handling, syrup checks, and general soluble-solids testing.

- Soybean milk and specialty liquid screening: portable Digital Refractometer combines 0.0–60.0% Brix, 0–25.0% soybean milk, and refractive index, which makes it useful for specialty beverage and plant-based liquid testing where users want more than a standard Brix meter.
- Salinity and marine / brine measurement: this supports salt solution checks, seawater monitoring, marine use, and related QC work.
- Honey measurement: ToronDR™ P 301 is configured for honey Brix, honey water, honey Baumé, and refractive index. That makes the useful for honey ripeness checks, packing QC, and incoming honey-lot comparison.
- Wine and beer testing: the ToronDR™ P 401 for wine with Brix, %VOL, Oe, and KMW, and ToronDR™ P 402 for beer with Brix and wort specific gravity. This gives the platform a practical role in winery and brewing process control.
- Automotive and general portable use: the product is suitable for automotive and other industries. While the visible model table emphasizes food, salinity, honey, wine, and beer, the rugged portable design and industry positioning support field use beyond laboratory environments.



FEATURES

Portable Digital Refractometer - ToronDR™ P Key Features

- Portable Digital Refractometer platform using a linear CMOS sensor for high precision and repeatability.
- Compact handheld design for daily portable use.
- Exterior shell made of high-performance waterproof and anti-shock material.
- Wide model lineup covering Brix, sugars, soybean milk, salinity, honey, wine, and beer.
- Direct refractive-index readout included across the visible model lineup.
- Suitable for daily health care, food and beverage procurement, medical care, automotive, and other industries.
- Competitive portable format for routine field or line-side testing.

THEORY & METHOD

Theory and Method

The Portable Digital Refractometer –ToronDR™ P uses a linear CMOS sensor to detect optical response and convert it into a digital value. This digital method supports high precision and repeatability, and it allows each model to present direct numerical values for its configured scale together with a refractive index.

In practice, the operator selects the model that matches the target liquid and reads the result directly on the digital interface. This avoids manual eyepiece reading and makes repeated checks easier during daily QC or field work. That easier-reading benefit is a practical inference from the digital platform design.

TECHNICAL SPECIFICATIONS

Portable Digital Refractometer - ToronDR™ P Technical Specification

Specification	Portable Digital Refractometer - ToronDR™ P
Product type	Portable Digital Refractometer platform
Sensor type	Linear CMOS sensor
Body construction	Waterproof and anti-shock exterior shell
Product style	Small and portable handheld unit
Stated use industries	Daily health care, food and beverage procurement, medical care, automotive, and other industries

Series / Model	Scale Name	Measurement Range	Resolution	Accuracy
Brix (ToronDR™ P 100 Series)				
ToronDR™ P 101	Brix %	0.0 - 60.0%	0.1%	±0.2%
	Refractive Index	1.3330 - 1.4308 nD	0.0001 nD	±0.0003 nD
ToronDR™ P 102	Brix %	0.0 - 95.0%	0.1%	±0.2%
	Refractive Index	1.3330 - 1.5318 nD	0.0001 nD	±0.0003 nD
ToronDR™ P 103	Dextran	0.0 - 10.6%	0.1%	±0.2%
	Refractive Index	1.3330 - 1.4308 nD	0.0001 nD	±0.0003 nD
ToronDR™ P 104	Fructose	0.0 - 68.9%	0.1%	±0.2%
	Refractive Index	1.3330 - 1.5318 nD	0.0001 nD	±0.0003 nD

Series / Model	Scale Name	Measurement Range	Resolution	Accuracy
ToronDR™ P 105	Glucose	0.0 - 59.9%	0.1%	±0.2%
	Refractive Index	1.3330 - 1.5318 nD	0.0001 nD	±0.0003 nD
ToronDR™ P 106	Lactose	0.0 - 16.5%	0.1%	±0.2%
	Refractive Index	1.3330 - 1.4308 nD	0.0001 nD	±0.0003 nD
ToronDR™ P 107	Maltose	0.0 - 15.6%	0.1%	±0.2%
	Refractive Index	1.3330 - 1.4308 nD	0.0001 nD	±0.0003 nD
ToronDR™ P 108	Brix %	0.0 - 60.0%	0.1%	±0.2%
	Soybean Milk	0 - 25.0%	0.1%	±0.2%
	Refractive Index	1.3330 - 1.4308 nD	0.0001 nD	±0.0003 nD
Salinity (ToronDR™ P 200 Series)				
ToronDR™ P 201 (NaCl)	NaCl %	0.0 - 28.0%	0.1%	±0.2%
	NaCl ppt	0 - 280‰	1‰	±2‰
	NaCl S.G. (D ₂₀ ²⁰)	1.000 - 1.217	0.001	±0.002
	Refractive Index	1.3330 - 1.4308 nD	0.0001 nD	±0.0003 nD
ToronDR™ P 202 (Sea Water)	Sea Salinity	0 - 100‰	1‰	±2‰
	Sea Chlorinity	0 - 57‰	1‰	±2‰
	Sea S.G. (D ₂₀ ²⁰)	1.000 - 1.070	0.001	±0.002
	Refractive Index	1.3330 - 1.4308 nD	0.0001 nD	±0.0003 nD
Honey (ToronDR™ P 300 Series)				

Series / Model	Scale Name	Measurement Range	Resolution	Accuracy
ToronDR™ P 301	Brix %	0.0 – 95.0%	0.1%	±0.2%
	Honey Water	38.0% – 5.0%	0.1%	±0.2%
	Honey Baume	33.0 – 48.0	0.1	±0.2
	Refractive Index	1.3330 – 1.5318 nD	0.0001 nD	±0.0003 nD
Wine/Beer (ToronDR™ P 400 Series)				
ToronDR™ P 401 (Wine)	Brix %	0.0 – 60.0%	0.1%	±0.2%
	% VOL ap	0.0 – 22.0%	0.1%	±0.2%
	Wine Oechsle (Oe)	0 – 150	1	±2
	KMW	0.0 – 25.0	0.1	±0.2
ToronDR™ P 402 (Beer)	Brix %	0.0 – 60.0%	0.1%	±0.2%
	Wort S.G. ($D_{20/20}$)	1.000 – 1.130	0.001	±0.002

General Technical Notes

- nD Units: Refractive Index is measured in \$nD\$ units.
- Specific Gravity (\$S.G.\$): Calculated based on standard reference temperatures (\$D_{20/4}\$ for Salinity and \$D_{20/20}\$ for Beer Wort).
- Honey Water Scale: Note that the range is listed from 38% down to 5%, which is standard for moisture content measurement in honey.



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