

ADVANCED DESKTOP DIGITAL REFRACTOMETER



Advanced Desktop Digital Refractometer – ToronDR™ DA Series

A Digital Refractometer in the ToronDR™ DA Series is a bench-style Refractometer designed for higher-stability desktop measurement across food, beverage, medical, automotive, and general laboratory use. The ToronDR™ DA platform as a desktop instrument using a linear CMOS sensor for high precision and repeatability, with a scratch-resistant sapphire glass measuring surface and a 5-inch LCD screen for easier reading.

This series is positioned as a broader desktop alternative to handheld digital refractometers. The ToronDR™ DA uses a replaceable 18650 lithium battery and supports PC software for custom line programming, which makes it more flexible for users who want a configurable bench instrument instead of a fixed single-scale device.

Advanced Desktop Digital Refractometer – ToronDR™ DA Series is a compact bench instrument for direct digital concentration and refractive-style measurement. Unlike manual optical refractometers that depend on eyepiece interpretation, this platform is built for screen-based digital readout and model-specific programmed scales. This series covers Brix, sugar-specific scales, salinity, honey, wine, clinical, car, urea, engine coolant, and brake-fluid applications.

The best standards context depends on the liquid being measured. ISO 2173 is a useful reference for soluble-solids measurement in food and beverage products, while ASTM D1218 provides general refractive-index method context for transparent liquids. For automotive models, ASTM D3321 is the most relevant refractometer-based coolant reference, and FMVSS 116 is the strongest brake-fluid regulatory reference.

APPLICATIONS

Advanced Desktop Digital Refractometer – ToronDR™ DA Series Application

- Food and beverage concentration checks: the series includes ToronDR™ DA 102 for 0.0–90.0% Brix and models for dextran, fructose, glucose, lactose, and maltose, which makes it suitable for soluble-solids testing, sugar-process checks, ingredient handling, and general food or beverage QA. For this use, ISO 2173 is the strongest broad method reference because it covers refractometric determination of soluble solids in fruit and vegetable products.
- Salinity and marine / brine screening: the ToronDR™ DA 201 and ToronDR™ DA 202 models support sodium chloride salinity, seawater salinity, chlorinity, and specific gravity. That makes the platform useful for brine preparation, marine water checks, aquarium support, and salt-solution QC where a bench-style digital unit is preferred over a portable meter.
- Honey measurement: the ToronDR™ DA 301 model is configured for Brix, water, and Baumé. This makes it suitable for honey concentration checks, moisture-related screening, and packing QC. Honey moisture remains a key commercial parameter, so having all three values in one desktop model is useful for routine bench verification.
- Wine and brewing support: the ToronDR™ DA 401 model includes Brix, %VOL, Oe, and KMW, which fits winery intake and process work.
- Clinical screening: the ToronDR™ DA 501 model is configured for urine specific gravity and serum protein, which makes it suitable for routine clinical screening where a desk unit is preferred. The table shows URINE SP.G. 1.000–1.050 and SERUM P. -0.1–12.0 on this model.
- Automotive service fluids: the ToronDR™ DA 601, 602, 603, and 604 models are configured for cleaner fluid, ethylene glycol, propylene glycol, battery specific gravity, urea, engine coolant, and brake fluid. These models fit workshop QC, fleet maintenance support, coolant verification, and brake-fluid condition checks. ASTM D3321 is the most relevant coolant refractometer reference, while FMVSS 116 is the strongest brake-fluid standards context.



FEATURES

Advanced Desktop Digital Refractometer - ToronDR™ DA Series Key Features

- Advanced Desktop Digital Refractometer platform using a linear CMOS sensor for high precision and repeatability.
- Scratch-resistant sapphire glass measuring surface for routine bench use.
- 5-inch LCD screen for easy reading.
- Replaceable 18650 lithium battery for flexible power use.
- PC software application that allows users to customize line programming and create their own lines.
- Suitable for scientific research, food and beverage, medical, automobile, and other industries.
- Available in multiple configured models for Brix, sugars, salinity, honey, wine, clinical, coolant, urea, and brake fluid.

THEORY & METHOD

Theory and Method

The ToronDR™ DA Series uses a linear CMOS sensor to capture the optical response of the sample and convert it into a digital result. The platform offers high precision and great repeatability, which reflects its bench-style design and sensor-based approach.

The instrument uses a hard sapphire glass measuring surface, which supports repeated daily use, and the 5-inch LCD screen makes results easier to read than a manual optical eyepiece system. The addition of PC software for custom line

programming means the platform can be tailored to different measurement lines beyond the preloaded model list.

TECHNICAL SPECIFICATIONS

Advanced Desktop Digital Refractometer - ToronDR™ DA Series Technical Specification

Specification	Advanced Desktop Digital Refractometer - ToronDR™ DA Series
Product type	Advanced Desktop Digital Refractometer
Sensor type	Linear CMOS sensor
Measuring surface	Hard scratch-resistant sapphire glass
Display	5-inch LCD screen
Battery type	18650 lithium battery, user replaceable
Software	PC software application with custom line programming capability
Stated industries	Scientific research, food and beverage, medical, automobile, and other industries

Available Model Lineup

Model	Scale name	Range	Resolution	Accuracy
ToronDR™ DA 102	Brix	0.0–90.0%	0.1%	±0.1%
ToronDR™ DA 103	Dextran	0.0–10.6%	0.1%	±0.1%
ToronDR™ DA 104	Fructose	0.0–68.9%	0.1%	±0.1%

Model	Scale name	Range	Resolution	Accuracy
ToronDR™ DA 105	Glucose	0.0-59.9%	0.1%	±0.1%
ToronDR™ DA 106	Lactose	0.0-16.5%	0.1%	±0.1%
ToronDR™ DA 107	Maltose	0.0-15.6%	0.1%	±0.1%
ToronDR™ DA 201	Salinity	0.0-28.0%	0.1%	±0.1%
	Salinity	0-280‰	1‰	±1‰
	Specific gravity	1.000-1.217	0.001	±0.001
ToronDR™ DA 202	Salinity	0-100‰	1‰	±1‰
	Chlorinity	0-57‰	1‰	±1‰
	Specific gravity	1.000-1.070	0.001	±0.001
ToronDR™ DA 301	Brix	0.0-90.0%	0.1%	±0.1%
	Water	38.0%-5.0%	0.1%	±0.1%
	Be'	33.0-48.0	0.1	±0.1
ToronDR™ DA 401	Brix%	0.0-50.0%	0.1%	±0.1%
	%VOL ap	0.0-22.0%	0.1%	±0.1%
	Oe	0-150	1	±1%
	KMW	0.0-25.0	0.1	±0.1
ToronDR™ DA 501	URINE SP.G.	1.000-1.050	0.001	±0.001
	SERUM P.	-0.1-12.0	0.1	±0.1
ToronDR™ DA 601	Cleaner	0 to -60°C	0.1°C	±0.3°C
	Ethylene Glycol	0 to -60°C	0.1°C	±0.3°C

Model	Scale name	Range	Resolution	Accuracy
Propylene Glycol	0 to -70°C	0.1°C	±0.3°C	
Battery	1.000–1.500 sg	0.001	±0.003 sg	
ToronDR™ DA 602	Urea (NH ₂) ₂ CO	0–51.0%	0.1%	±0.1%
ToronDR™ DA 603	Ethylene Glycol	0–60%	0.1%	±0.3%
	Ethylene Glycol (°C)	0 to -60°C	0.1°C	±0.3°C
	Propylene Glycol	0–70%	0.10%	±0.3%
	Propylene Glycol (°C)	0 to -70°C	0.1°C	±0.3°C
ToronDR™ DA 604	DOT3	121–260°C	1°C	±3°C
	DOT4	125–275°C	1°C	±3°C



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