



Anton Paar

SmartRef

 **Anton Paar**

DIGITAL REFRACTOMETER
SMARTREF BY ANTON PAAR

SmartRef

D I G I T A L R E F R A C T O M E T E R

Smart technology for consistent measurement results & convenient monitoring:

- › Measuring range from 0 to 85 °Brix
- › High accuracy of 0.2 °Brix
- › Auto. temperature compensation
- › 15+ measurement units
- › Free mobile app for iOS & Android

The SmartRef Digital Refractometer is a portable smart device suitable for a wide range of requirements. **In combination with a free mobile app, this refractometer offers more than 15 different measurement units.**

Depending on your need SmartRef enables you to measure the salt content of your saltwater aquarium or pool, the extract content of your beer, the sugar content in wine, the sweetness of fruits and vegetables, the moisture of honey, and much more.

SmartRef is the result of high-precision craft and passion for research. Made in Austria.

More info

www.my-smartref.com



SmartRef

SMART TECHNOLOGY

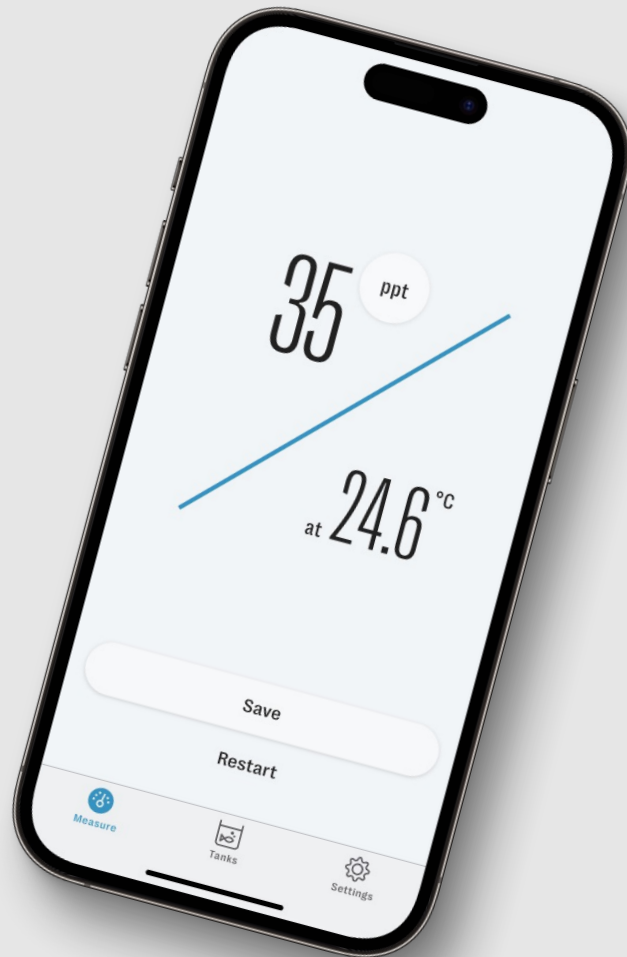
The SmartRef is used in combination with a **free mobile app** for Android and iOS via **Bluetooth Low Energy** and enables intelligent handling of the measurement results.

The app enables **easy storage, visualization, management, and sharing** of measurement data.

The integrated SmartGuide+ detects and helps to eliminate any measurement problems through **high ambient light detection, continuous check of prism and sample condition, and more.**

In addition to the quick measurement mode, measurements in **continuous mode** allow a more detailed understanding of the samples' properties.

Over-the-air updates keep your digital refractometer up to date with the latest features.



SmartRef

MEASUREMENT

The SmartRef refractometer measures the **refractive index of fluids**. This allows to retrieve relevant sample properties in a wide variety of applications.

Fast temperature stabilization and automatic temperature compensation of the measurement results make additional calculations and correction tables obsolete.

The unit has an IP66 rating and an easy-to-clean stainless steel sample well.

SmartRef supports an **one-point zero adjustment** with distilled water and requires only a few drops of sample (0.4 mL).

It displays results in under 2 seconds and has a measurement range of 0 to 85 °Brix with an accuracy of 0.2 °Brix.



SmartRef

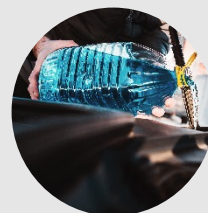
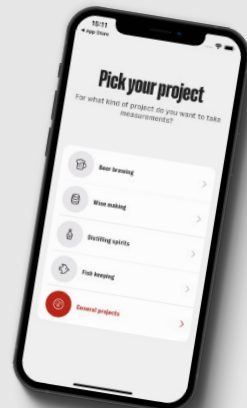
APPLICATIONS

Brix Refractometer for honey, wine, juice, sauces, jams, fruits, vegetables, and maple syrup: The SmartRef measures the sugar content in °Babo, °Baumé, °Brix, °KMW, and °Oechsle.

Salinity Refractometer: The SmartRef determines the salt content in your saltwater aquarium and pool in Salinity specific gravity (SG 20/20), Practical Salinity Units (PSU), and Salinity in parts per thousand (ppt).

Beer Refractometer: The SmartRef shows the extract content of wort in °Plato.

As a smart device, the SmartRef offers a constant expansion of measurement units. All available scales are provided within the app.



SmartRef

FOR BEER BREWING

Connected to the Brew Meister smartphone app for iOS and Android, the SmartRef determines the extract content of wort in seconds and enables fermentation process monitoring with digital accuracy.

Brew Meister takes care of all the necessary. **The results are already compensated for temperature, wort and alcohol** – allowing full focus on brewing beer without the hassle of additional calculation steps.

SmartRef is the first refractometer with automatic wort and alcohol correction. The correction factors can be adjusted universally within the app or individually for each batch to get precise values for different beer styles.

With a small sample volume of only 0.4 mL the SmartRef delivers accurate for:

- Plato [°P]
- Brix [°B]
- Specific gravity [SG 20/20]
- Est. ABV [% v/v]
- Temperature [°C], [°F]



Beer Combo

SMARTREF & EASYDENS

Precise ABV readings for finished beer!

NEW FEATURE RELEASE

It is now possible to determine the alcohol content of fermenting and finished beer with an accuracy of 0.5 %v/v.

The **new measurement based on the MEBAK B-590.10.070 method combines density and refractive index measurement** and thus enables precise determination of the alcohol content of beer.

Results for:

- Original gravity
- Real extract
- Final gravity

Supported beers:

- Normal beer (OG: 10.9 °P – 15.9 °P)
- Strong beer (OG: ≥ 15.9 °P)

VIDEO



SmartRef vs. EasyDens

FOR BEER BREWING

While EasyDens can determine °Plato and specific gravity (SG) directly from a density measurement, SmartRef and the Brew Meister App need to make adjustments to the original measurement result to enable fermentation progress control.

EasyDens is a digital density meter that measures density and temperature according to the renowned oscillating U-tube principle to **directly determine parameters such as °Plato or SG**. EasyDens provides **highly accurate measurement results** throughout the brewing process, ideal for passionate home and craft brewers who are looking for a precise measuring device to optimize the brewing process and exploit the full potential of their beer.

SmartRef is a digital refractometer that measures the refractive index of liquids and determines measurement parameters such as °Brix. However, this refers to sucrose-water mixtures. **Since wort is not just a composition of sucrose and water, adjustments such as wort and alcohol correction must be applied to correctly determine °Plato and SG and follow the fermentation process.** The Brew Meister App already performs these calculations automatically. The correction factors can be specified globally or individually for each "batch" to ensure accurate results regardless of the beer type. Due to its simple operation, the SmartRef is suitable for measurements during the entire brewing process, especially for beginners.



Overview	EasyDens	SmartRef
Sample volume	2 mL	0.4 mL
Accuracy		
°Brix	± 0.3	± 0.2
°Plato	± 0.3	± 0.2 *Sucrose-water mixture
Specific gravity (SG 20/20)	± 0.001	± 0.001 * Sucrose-water mixture
Weight	190g	135g
Protection	IP65 (IEC 60529)	IP66 (IEC 60529)
Adjustment	Rarely (only if required)	Before each measurement

SmartRef

SPECIFICATIONS

Measuring Range	
Refractive index (RI) at 20°C	1.3330 – 1.5040
Brix	0° – 85°
Sample temperature	10 °C – 100 °C (50 °F – 212 °F)
PSU (practical salinity units)	0 – 50
Salinity ppt (parts per thousand)	0 – 150
Salinity S.G. (20/20)	1.000 – 1.114

Accuracy	
Refractive index (RI)	± 0.0003
Brix	± 0.2°
Temperature	0.5 °C (0.9 °F)
PSU (practical salinity units)	± 2
Salinity ppt (parts per thousand)	± 2
Salinity S.G. (20/20)	± 0.002

Resolution	
Refractive index (RI)	0.0001
Brix	0.1°
Temperature	0.1 °C (0.1 °F)
PSU (practical salinity units)	1
Salinity ppt (parts per thousand)	1
Salinity S.G. (20/20)	0.001

Data	
Dimensions (L x W x H)	108 x 64 x 35 mm (4.3 in x 2.5 in 1.4 in)
Weight (incl. batteries)	~135 g (0.31 lbs.)
Power supply	2x AAA 1.5V LR03 alkaline batteries or AAA NiMH rechargeable batteries
Enclosure rating	IP66 according to IEC 60529

Further Specifications	
Sample volume	0.4 mL
Measurement time	< 2 s
Auto. temp. compensation 20 °C %Brix	10 °C – 100 °C (50 °F – 212 °F)
Auto. temp. compensation 20 °C PSU, ppt, S.G. (20/20)	10 °C – 40 °C (50 °F – 104 °F)
Mobile operating system	Android & iOS

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