<table>
<thead>
<tr>
<th>PAL-COFFEE (Cat.No.4523)</th>
<th>PAL-COFFEE(TDS) (Cat.No.4532)</th>
<th>PAL-COFFEE(BX/TDS) (Cat.No.4533)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Measurement Range</strong></td>
<td><strong>TDS : 0.00 to 22.00% (ATC)</strong></td>
<td><strong>Brix : 0.00 to 25.00% (ATC)</strong></td>
</tr>
<tr>
<td>Brix : 0.00 to 25.00% (ATC)</td>
<td>Temperature : 10.0 to 100°C</td>
<td>Temperature : 10.0 to 100°C</td>
</tr>
<tr>
<td>Resolution</td>
<td><strong>Temperature : 0.1°C</strong></td>
<td><strong>Brix : ±0.10%</strong></td>
</tr>
<tr>
<td>Brix : 0.01%</td>
<td><strong>Temperature : 0.1°C</strong></td>
<td>TDS : ±0.15%</td>
</tr>
<tr>
<td>Measurement Accuracy</td>
<td><strong>Temperature : ±1°C</strong></td>
<td><strong>Temperature : ±1°C</strong></td>
</tr>
<tr>
<td>Brix : ±0.10% Temperature : ±1°C</td>
<td><strong>Temperature : ±1°C</strong></td>
<td><strong>Temperature : ±1°C</strong></td>
</tr>
<tr>
<td>Temperature compensation range</td>
<td>10 to 100°C (Automatic Temperature Compensation)</td>
<td>10 to 40°C</td>
</tr>
<tr>
<td>Ambient Temperature</td>
<td>10 to 40°C</td>
<td></td>
</tr>
<tr>
<td>Sample Volume</td>
<td>At least 0.3ml</td>
<td></td>
</tr>
<tr>
<td>Measurement Time</td>
<td>Approx. 5 seconds</td>
<td>Approx. 3 seconds</td>
</tr>
<tr>
<td>Time</td>
<td>120 seconds of continuous measurement</td>
<td>Continuous measurement</td>
</tr>
<tr>
<td>Power Supply</td>
<td>Two (2) AAA alkaline batteries</td>
<td></td>
</tr>
<tr>
<td>International Protection Class</td>
<td>IP65 Dust-tight and Protected against water jets.</td>
<td></td>
</tr>
<tr>
<td>Dimensions and Weight</td>
<td>55 (W) × 31 (D) × 109 (H) mm, 100g (main unit only)</td>
<td></td>
</tr>
</tbody>
</table>

- To control coffee concentration using TDS%, PAL-COFFEE (TDS) is recommended.
- To ascertain both Brix% and TDS%, PAL-COFFEE (BX/TDS) is recommended.

All ATAGO refractometers are designed and manufactured in Japan.

Headquarters: The Front Tower Shibakoen, 23rd Floor 2-6-3 Shibakoen, Minato-ku, Tokyo 105-0011, Japan
TEL: 81-3-3431-1943 FAX: 81-3-3431-1945

* Specifications and appearance are subject to change without notice.
For coffee lovers the world over

Top class beans, top class water, a top class percolator, and a top class barista. For the ultimate in great tasting coffee, coffee lovers the world over seek the best of everything required for that best-tasting cup.

You may encounter a memorable cup first thing in the morning, while winding down after work, or as the perfect ending to a great meal. What makes for a great barista is the ability to produce an excellent cup anytime, anywhere.

One of the critical aspects of coffee is its mouthfeel. The exact same coffee bean gives entirely different impressions, depending on whether it is brewed strongly or weakly. A clean, refreshing cup may be ideal for a hangover, but you may crave a rich and full-flavored complex coffee when taking time for yourself to relax.

The PAL-COFFEE is a fun gadget that enables you to check the mouthfeel of coffee at a glance.

The yield, the amount of coffee extracted from the grounds, is monitored while the recipe for the particular type of bean is being perfected. Being a numerical parameter, the yield is a reliable tool for recreating the same flavor every time.

Needless to say, the yield alone cannot capture all the aspects of the coffee's taste. Cupping, the sensory evaluation of coffee, addresses such complex characteristics as the body, flavor, aroma, and aftertaste.

The yield, specifically, is closely related to the acidity and bitterness. Poorly brewed coffee may taste burnt or have an underdeveloped, sour flavor. The PAL-COFFEE ultimately helps to express and control the acidity and bitterness of coffee by measuring its Brix/concentration, which is used to calculate the yield.

Let the PAL-COFFEE enhance your coffee routine.
Brix and Yield (with target value examples provided by our coffee shop customers)

Before & After Measurement
- Zero-set the unit with room temperature water. Make sure that both the unit and water for zero-setting have been acclimated to room temperature.
- Keep the prism clean. Residues left behind may cause erroneous readings. Clean the prism thoroughly after each measurement. Cotton swabs work well for cleaning the edges.

Tips for Measuring Different Types of Coffee
- Common for all types
  The concentration of coffee changes over the course of the extraction process. Gently stirring the coffee will even out the consistency and promote measurement stability.
- French press coffee
  Pour the coffee into a cup and let it sit undisturbed for a while to allow particles to sink to the bottom. Avoid sampling from the oily surface.
- Espresso
  Espresso generally contains more particles than drip coffee. Measurement fluctuation by 0.5% is common.
- When cupping
  Scoop out any floating grounds and oil thoroughly as they may cause unstable measurements.

Yield calculation example
- When 140g (ml) of coffee brewed from 12g of grounds measures 1.8% Brix:
  \[ \frac{1.8 \times 140}{12} = 21\% \]

- When 1,600g (ml) of coffee brewed from 100g of grounds measures 1.6% Brix:
  \[ \frac{1.6 \times 1600}{100} = 25.6\% \]

Typical correlation
- Too low a yield = sour-tasting coffee
- Too high a yield = bitter-tasting coffee
- High Brix = strong coffee
- Low Brix = weak coffee

*The Brix/concentration of coffee may not always be indicative of its yield.
MY COFFEE RECIPE
Ideal for top quality coffee recipe management.
Bear Pond Espresso is in premises that were once the old Otsuki candy store, and retains that vintage feel in a simple whitewashed interior. The coffee that owner-barista Katsuyuki Tanaka brews is truly one of a kind, found nowhere else. Experience Bear Pond’s knock-out blend of the bitter, the acidic and the sweet in one unforgettable cup. And behind this stunningly good coffee is top-class barista Tanaka managing it all, from bean selection to roasting. And supporting his work with readings of the values is PAL-COFFEE.

Sunshine State Espresso is a coffee specialty shop that opened in Honjo in November 2012. It offers store-roasted specialty coffees: blends and several single-origins. What sets Sunshine State apart is its long black, brewed from store-roasted single-origin beans. Besides its assured quality, this is coffee you want to keep drinking, coffee that has you sit back contented. PAL-COFFEE works together with Sunshine State, settling on the right recipes, providing seminars, and more.

Allpress Espresso is a roaster from New Zealand that provides cafes and restaurants with carefully selected specialty coffee beans. In addition to supplying fresh roasted beans, Allpress provides all-round support for the cafe industry through barista training, equipment maintenance, menu development and more. In August 2014, the Allpress Espresso Tokyo Roastery and Cafe is due to open as the company’s Japan base in Tokyo’s Kiba district. Customers will be able to enjoy a “perfect cup” whose just-right body is achieved with the help of PAL-COFFEE.

Fuglen Tokyo is a fusion of high-quality coffee bar, cocktail bar and vintage design furniture store, exuding a truly Norwegian air. Whichever coffee you go for will stand out for its finely tuned balance. The secret: a brewing recipe to draw out those flavors, and PAL-COFFEE-assisted control of body.

Allpress Espresso
Yano Daisan Bldg. 601, 2-6-4 Tomioka, Koto-Ku, Tokyo Japan
TEL: 81-3-5875-9392
http://jp.allpressesspresso.com

Norway is known throughout the world for coffee brewed to the most exacting standards, and an amazing little cafe from the capital, Oslo, has made its way to Japan. Fuglen Tokyo is a fusion of high-quality coffee bar, cocktail bar and vintage design furniture store, exuding a truly Norwegian air. Whichever coffee you go for will stand out for its finely tuned balance. The secret: a brewing recipe to draw out those flavors, and PAL-COFFEE-assisted control of body.

Fuglen Tokyo
World-class coffee in Yoyogi

Fuglen Tokyo
1-16-11 Tomigaya, Shibuya-ku, Tokyo Japan
TEL: 81-3-3481-0884
http://www.fuglen.com

Sunshine State Espresso
Coffee with a freer, lighter touch

Sunshine State Espresso
1-34-7 Honjo, Sumida-ku, Tokyo Japan
TEL: 81-3-6456-1806
http://sunshinestateespresso.com

Allpress Espresso
Year-round support

Allpress Espresso
2-36-12 Kitazawa, Setagaya-ku, Tokyo Japan
TEL: 81-3-5454-2486
http://www.bear-pond.com

Allpress Espresso
Renowned New York-style espresso shop

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HOSHIKAWA CAFE
1-77 Hoshikawa, Kumagaya-shi, Saitama-ken Japan
TEL: 81-48-594-7574
http://www.hoshikawa-cafe.com
HOSHIKAWA CAFE
The flavor of Norway in northern Saitama

HORIZUCHI COFFEE
The Setagaya branch: 1-12-15 Funabashi, Setagaya-ku, Tokyo Japan
TEL: 81-3-5477-4142
The Komae branch: 1-1-30 Isumihoncho, Komae-shi, Tokyo Japan
TEL: 81-3-5438-2143
http://www.kohikobo.co.jp
HORIZUCHI COFFEE
The New Coffee Classic

Paul Bassett Shibuya Hikarie ShinQs
Shibuya Hikarie ShinQs B2F, 2-21-1 Shibuya, Shibuya-ku, Tokyo Japan
TEL: 81-3-5468-3165
http://lcdhpb.jp
Paul Bassett Shinjuku
Shinjuku Nomura Bldg B1F, 1-26-2 Nishishinjuku, Shinjuku-ku, Tokyo Japan
TEL: 81-3-5324-5090
http://www.paulbassett.jp

No more fluctuation! Secret to stable measurements.

When measuring hot coffee with a conventional refractometer, the readings tend to fluctuate at the beginning. This is because it takes some time for the temperature of the coffee to be detected by the refractometer’s sensor.

The PAL-COFFEE waits until the sample temperature is measured accurately to start measuring, producing accurate, stable readings. While it depends on the brewing method, it takes quite a while for freshly brewed coffee above 80°C to cool down completely.

With the PAL-COFFEE, measurement fluctuation has been reported to be less than 0.1%. This high repeatability enables even inexperienced users to achieve accurate results.

It is recommended to take 3 consecutive measurements to ensure absolute accuracy. You can be confident that the 3rd reading is the fully stabilized value.