

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

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

All ATAGO refractometers are designed and manufactured in Japan.

**ATAGO CO., LTD.**

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ATAGO U.S.A., Inc.

ATAGO BRASIL Ltda.

ATAGO CHINA Guangzhou Co., Ltd.

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ATAGO RUSSIA Ltd.

ATAGO THAILAND Co., Ltd.

\* Specifications and appearance are subject to change without notice.

[ENV.01] 14070800PP Printed in Japan

# PAL-COFFEE

Digital Hand-held "Pocket" Refractometer



(ES) Equipements Scientifiques SA - Département Bio-Tests & Industries - 127 rue de Buzenval BP 26 - 92380 Garches  
Tél. 01 47 95 99 90 - Fax. 01 47 01 16 22 - e-mail: [bio@es-france.com](mailto:bio@es-france.com) - Site Web: [www.es-france.com](http://www.es-france.com)



## 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.

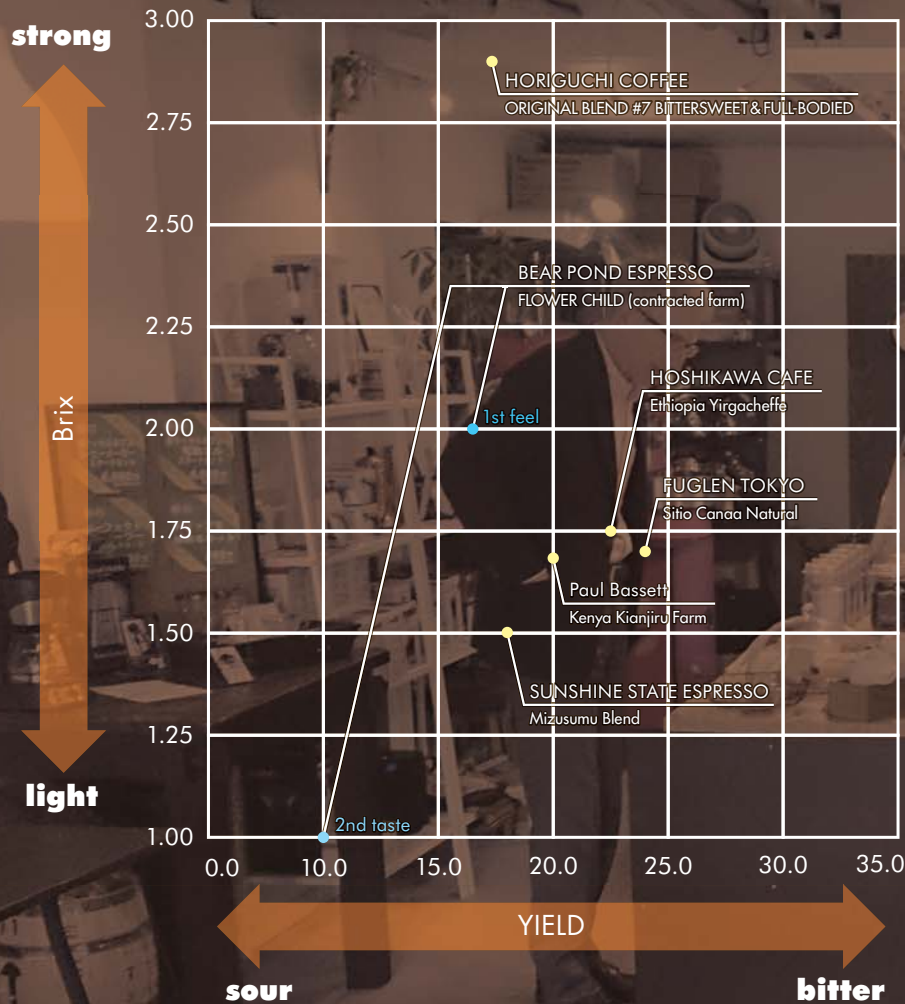
The PAL-COFFEE ultimately helps to express and control the acidity and bitterness of coffee by measuring its Brix/concentration, which is used to calculate the yield.

Let the PAL-COFFEE enhance your coffee routine.





## Brix and Yield (with target value examples provided by our coffee shop customers)



### 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.

## 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.

**PAL-COFFEE**  
Recipe Design

name	Ethiopia
score	83
brewer type	Coffee press
brew time	4' 00"
roaster name	SUNSHINE STATE E.
roast style	Medium roast
farm / farmer	Yirgacheffe

### PAL-COFFEE app coming soon

Control recipes, Brix, and yield on your smartphone.

\*Sample picture only. Actual product may differ.



Coffee Shops



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.

## BEAR POND ESPRESSO

Renowned New York-style espresso shop



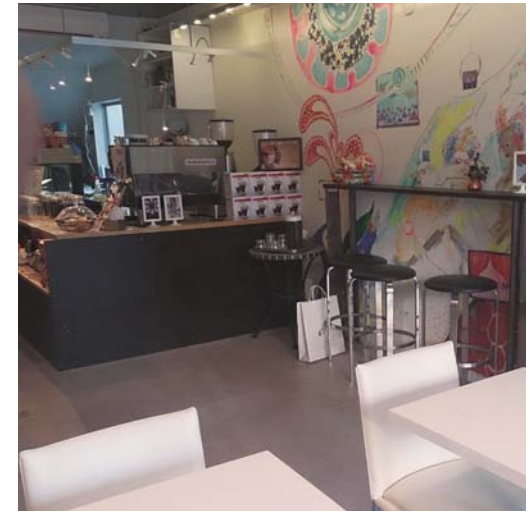
### BEAR POND ESPRESSO

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

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.

## SUNSHINE STATE ESPRESSO

Coffee with a freer, lighter touch



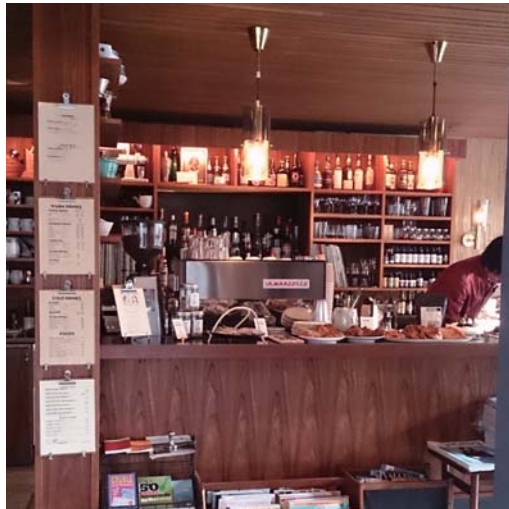
### SUNSHINE STATE ESPRESSO

1-34-7 Honjo, Sumida-ku, Tokyo Japan  
TEL: 81-3-6456-1806  
<http://sunshinestatespresso.com>

Norway is known throughout the world for coffee brewed to the most exacting standards, and an amazing little café 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



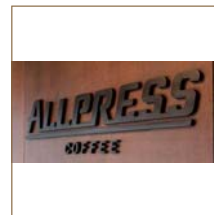
### FUGLEN TOKYO

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

Allpress Espresso is a roaster from New Zealand that provides cafés and restaurants with carefully selected specialty coffee beans. In addition to supplying fresh roasted beans, Allpress provides all-round support for the café industry through barista training, equipment maintenance, menu development and more. In August 2014, the Allpress Espresso Tokyo Roastery and Café 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.

## ALLPRESS ESPRESSO

The ultimate espresso, born of good beans, good water, good equipment, good people.



### ALLPRESS ESPRESSO

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



The Hoshikawa Café occupies a relaxing, wood-finished space in Kumagaya, Saitama. With only a few seats, the café is nevertheless a popular destination. Customers flock here for the owner's service, the coffee brewed from coffee beans airfreighted from Norway, and the pancakes baked from locally produced flour. The coffee to order here has to be the single origin brewed in a coffee press. The hot coffee is good, too, but their iced coffee is alluring in summer. There is probably nowhere else in Saitama to enjoy coffee this invigorating and clean-tasting. PAL-COFFEE is put to work in settling on the coffee brewing recipes.



The flavor of Norway in northern Saitama



### HOSHIKAWA CAFE

1-77 Hoshikawa, Kumagaya-shi, Saitama-ken Japan  
TEL:81-48-594-7574  
<http://www.hoshikawa-cafe.com>

The espresso that won the 2003 World Barista Championship can be enjoyed in Shinjuku and in the Hikarie ShinQs shopping mall in Shibuya. For espresso, choose between single origin and blend, both featuring exquisite balance between mouthfeel, acidity and other elements. The cafés have their own roaster, so you can watch the roasting take place before you. PAL-COFFEE helps ensure that Paul Bassett espresso maintains its uniform world-class brewing.



A coffee shop with the cred of a champion barista



### Paul Bassett Shinjuku

Shinjuku Nomura Bldg. B1F, 1-26-2 Nishishinjuku, Shinjuku-ku, Tokyo Japan  
TEL:81-3-5324-5090  
<http://www.paulbassett.jp>

### 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>

Horiguchi Coffee occupies a onetime retail space refurbished in April 2013, and besides its carefully selected in-season coffee beans boasts an impressive line-up of coffee-related equipment. The café space serves a variety of coffees from drip coffee to fancier variations, with a daily changing menu of parfaits and sandwiches. The Setagaya branch offers the added enjoyment of an espresso menu. PAL-COFFEE is used here to consistently recreate those winning flavors.



The New Coffee Classic



The Setagaya branch



The Komae branch



The Setagaya branch

### HORIGUCHI COFFEE

The Setagaya branch: 1-12-15 Funabashi, Setagaya-ku, Tokyo Japan TEL:81-3-5477-4142

The Komae branch: 1-1-30 Izumihoncho, Komae-shi, Tokyo Japan TEL:81-3-5438-2143  
<http://www.kohikobo.co.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.

