

Portable fruit Brix meter

Model ES-TB02



Introduction

ES-TB02 is a portable, non-destructive fruit Brix meter meticulously designed by EcoSenTec based on full-spectrum near-infrared technology; it allows direct measurement of fruit sugar without the need for picking, slicing, or juice extraction. Ideally suited for monitoring sugar content throughout the entire fruit cultivation cycle, the ES-TB02 tracks changes in Brix levels during growth without compromising the fruit's appearance. It provides essential data and analysis for applications such as R&D, cultivation, maturity monitoring, harvest timing, storage and transport, distribution, and price grading. With its portable design, user-friendly operation, and rapid measurement capabilities, it is an indispensable tool for orchard growers, testing agencies, fruit retail chains, and quality control.

Features

- Non-destructive testing—no need to pick, cut, or extract juice from the fruit;
- Full-spectrum measurement for minimized measurement errors;
- Effortless operation delivering fast, accurate, and intuitive results;
- Perfect fit against the fruit surface, effectively preventing measurement errors caused by ambient light interference;
- Lightweight and portable, suitable for one-handed use and powered by standard batteries for use anytime, anywhere;
- Built-in models; requires no cleaning or calibration, ensuring simple maintenance and low costs.

Working principle

The sugar content in fruit is a key factor influencing its sweetness and texture. Sugar molecules exhibit specific absorption characteristics regarding near-infrared (NIR) light, enabling the use of NIR spectroscopy to measure fruit sugar levels. Specifically, when NIR light illuminates the fruit, sugar molecules absorb photon energy matching their vibrational frequencies, resulting in the absorption of light at specific wavelengths. By measuring the intensity and position of this absorbed light, a model correlating these measurements with the fruit's sugar content can be established.

Application

- **Fruit and Vegetable Cultivation:** Enables individual sugar content testing for fruit growers; provides technical support for orchards and farms, including non-destructive testing, cultivation management, and data monitoring.
- **Quality Grading:** Assists fruit merchants with product inspection, rapid sorting, grading during procurement, and pricing.
- **Agricultural Research and Educational Institutions:** Provides a scientific basis for cultivation guidance, maturity monitoring.
- **Fruit Logistics and Distribution Centers:** Facilitates quality monitoring and rapid spot-checks, ensuring high product quality efficiently.
- **Lifestyle Assistant:** Helps pastry chefs measure the sugar content of fruit ingredients to ensure delicious flavor; also suitable for home gardening enthusiasts who grow their own fruit.

Specification

Name	Specifications
Detection wavelength	300 nm – 1100 nm
Fruit measured	Apples, kiwifruit, pears, peaches, oranges, persimmons, pomegranates, Shine Muscat grapes
Detection time	Results displayed in 3 seconds
Measurement range	10.0% to 18.0%
Measurement accuracy	±1% *Accuracy varies depending on apple variety and measurement environment.
Repeatability	±0.5%
Operating environment	USB data cable, built-in Bluetooth module
Operating environment	5-30°C
Display screen	LCD screen
Battery information	Rechargeable battery
Dimensions	202.5 mm × 71.1 mm × 172.9 mm



Order guide

ES-TB02	Portable fruit Brix meter	
	CODE	Type
	L	Measuring large fruit (100mm-180mm)
	M	Measuring medium fruit (70mm-120mm)
	S	Measuring small fruit (50mm-80mm)
ES-TB02	L	Order example