

INNOVATIVE TECHNOLOGIES



Haze Meter ToronHaze™ Series

Benchtop ToronHaze™ 700 Series
Portable ToronHaze™ TTH Series



Overview

The **ToronHaze™ Series** offers advanced solutions for precise haze and transmittance measurements across a wide range of materials, including plastics, films, glass, LCD panels, and more.

The series includes options for both portable and benchtop models, making it adaptable to different testing needs, whether for flexible field measurements or comprehensive laboratory analysis.

Conforms to **ASTM, ISO, and other international standards**, the ToronHaze™ Series is equipped with various light sources and apertures, providing the versatility needed to handle diverse testing scenarios with ease.

ASTM AND ISO STANDARDS for Precision Haze and Transmittance Testing

The ToronHaze™ Series by Torontech is designed to meet a wide array of ASTM and ISO standards, ensuring reliable and precise measurements in haze and transmittance testing. These standards guarantee that the instruments deliver consistent results across various materials, adhering to the highest quality benchmarks.

ASTM Standards

ASTM D1003: Specifies the methods for measuring haze and luminous transmittance of transparent plastics. It is widely used in industries where clarity and transparency of materials, such as films, glass, and plastics, are crucial.

ASTM D1044: Outlines the procedures for testing the resistance of transparent plastics to surface abrasion. This is particularly important for assessing the durability of materials in applications where they may be subject to wear and tear.

ASTM E1164: Provides guidelines for obtaining spectrometric data, particularly for colorimetric analysis. It ensures that color measurements are accurate and consistent, making it essential for quality control in industries where color precision is critical.

ISO Standards

ISO 14782: Defines methods for determining the haze of transparent materials. Like ASTM D1003, it ensures that products meet clarity requirements, which is vital in industries like automotive, packaging, and electronics.

ISO 7724/1: Part of a series dealing with color measurement, specifically addressing the methods for obtaining colorimetric data using spectrometers. It is essential for applications where precise color matching and quality control are required.

ISO 13468: Pertains to the measurement of the luminous transmittance of transparent and translucent materials. It is crucial for evaluating how much light passes through materials, ensuring that they meet specific transparency requirements.



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Haze Meter

Benchtop ToronHaze™ 700 Series

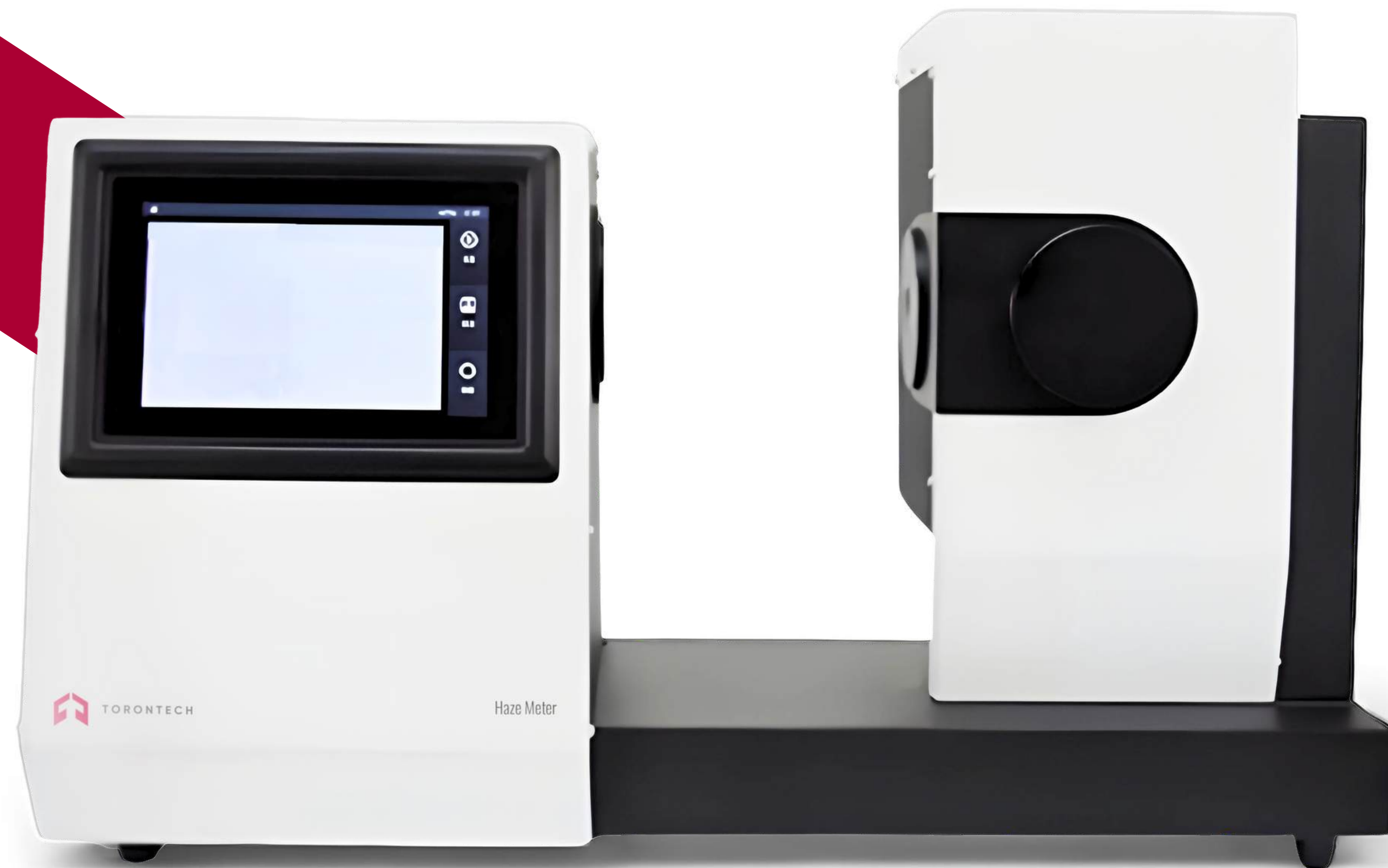
The Haze Meters are designed for accurate color, haze, and transmittance measurements, ideal for plastics, films, glass, LCD panels, touch screens, and other transparent or semi-transparent materials.

They use incident light to deliver reliable results. The open measuring area allows for testing various sample sizes and shapes, both vertically and horizontally.

This all-in-one meter delivers precise and reliable results, making it a valuable tool for quality control and material analysis.

Available Models:

- ToronHaze™-700
- ToronHaze™-720



FEATURES/ADVANTAGES

- **Comprehensive Measurement Capabilities:** Includes haze, color, and clarity (ToronHaze™-720) measurements, along with transmission color parameters.
- **Comprehensive Color Parameters:** Capable of measuring multiple color parameters, including Lab, yellow index, white index, Gardner, and PT-Co/APHA/Hazen color.
- **Compliance with International Standards:** Conforms to ASTM D1003/D1044, ISO 13468/ISO 14782, JIS K7105, JIS K7361, JIS K7163, and other international standards.
- **Flexible Light Source Options:** Supports D65, C, and 24 other light sources for various measurement needs.
- **Enhanced Accuracy with Compensation Measurement:** Delivers more accurate test results with advanced compensation measurement techniques.
- **User-Friendly and Flexible Operation:** Features a seven-inch touch screen for easier operation and an open sample measurement area for horizontal or vertical testing of different sample sizes and shapes.



TECHNICAL SPECIFICATIONS

SPECIFICATION	ToronHaze™-700	ToronHaze™-720
Measurement Area Sample Port	16.5mm/21mm	18mm/25.4mm
Light Source	Haze/Transmittance: CIE-A, CIE-C, CIE-D65	
	Chromaticity Index: A, C, D50, D55, D65, D75, F1, F2, F3, F4, F5, F6, F7, F8, F9, F10, F11, F12, CMF, U30, DLF, NBF, TL83, TL84	
Standards	ASTM D1003, ASTM D1044, ASTM E1164, ISO13468, ISO14782, ISO 7724/1, DIN 5033, JIS K7105, JIS K7361, etc.	
Parameters	Haze (HAZE), Transmittance (T), Spectral transmittance, CIE Lab, LCh, CIE Luv, XYZ, Yxy, Hunter Lab Munsell MI, CMYK, Whiteness WI (ASTM E313-00, ASTM E313-73, CIE, ISO2470/R457, Hunter, Taube Berger Stensby), Yellow Index YI (ASTM D1925, ASTM E313-00, ASTM E313-73), Tint (ASTM E313-00), Heterochromatic index Milm, APHA, Pt-Co (Index of platinum cobalt), Gardner, Color difference (AE*ab, AE*CH, AE*uv, AE*cmc(2:1), AE*cmc(1:1), AE*94, AE*00).	
Spectral Response	CIE The spectrum function Y/V(λ)	
Wavelength	400-700nm	
Wavelength Interval	10nm	
Geometry	0/d	

SPECIFICATION	ToronHaze™-700	ToronHaze™-720
Measurement Range	0-100%	
Haze Resolution	0.01%	
Haze Repeatability	Haze <10%, Repeatability ≤0.05%; Haze ≥10%, Repeatability ≤0.1%; Transmittance ≤0.1%	
Sample Size	Thickness ≤145mm	
Display	7 Inches Touch Screen	
Memory	Mass storage	
Interface	USB-A, USB-B	
Voltage	220V (110V is also available upon request)	
Working Temperature	5~40°C, Relative humidity 80% or below (at 35°C), no condensation	
Storage Temperature	-20°C~45°C, Relative humidity 80% or below (at 35°C), no condensation	
Dimensions (LxWxH)	598mm x 247mm x 366mm	
Weight	12 kg (26,5 lb)	
Standard Accessory	PC management software (Haze QC)	
Optional Accessories	Measurement Fixture, Haze standard film	
Sphere Diameter	154mm	



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Portable Haze Meter

ToronHaze™ TTH Series

Portable ToronHaze™ TTH Series are designed for convenience and precision in testing haze and transmittance, conforming to **ASTM, ISO, JIS**, and **other international standards**.

Compact and easy to carry, these meters feature a user-friendly 2.8-inch touchscreen with a high-accuracy display to ensure easy operation. They offer reliable repeatability with **dual optical paths**, as well as versatile testing options with multiple apertures and light sources for various measurement needs.

Ideal for applications such as mobile phone covers, films, glasses, and screens, Portable ToronHaze™ provide accurate and consistent measurements, making them essential for quality control in diverse industries.

Available Models:

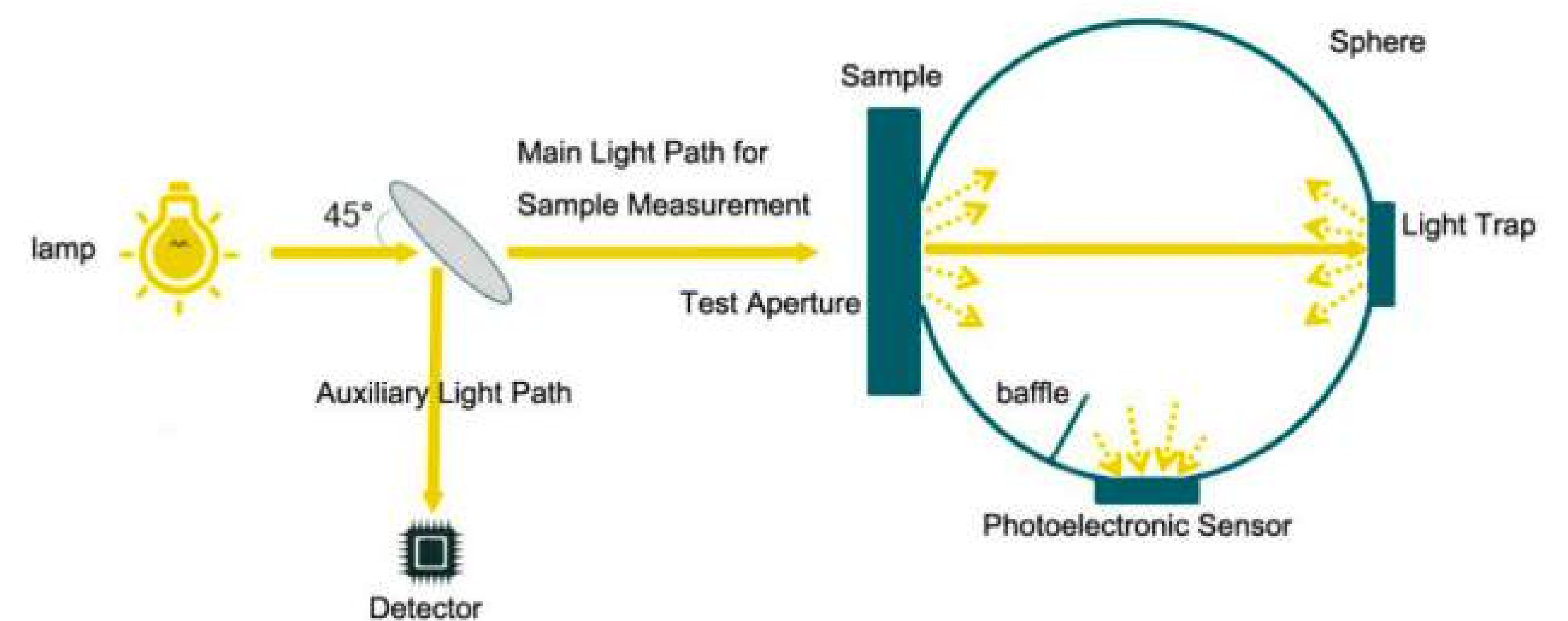
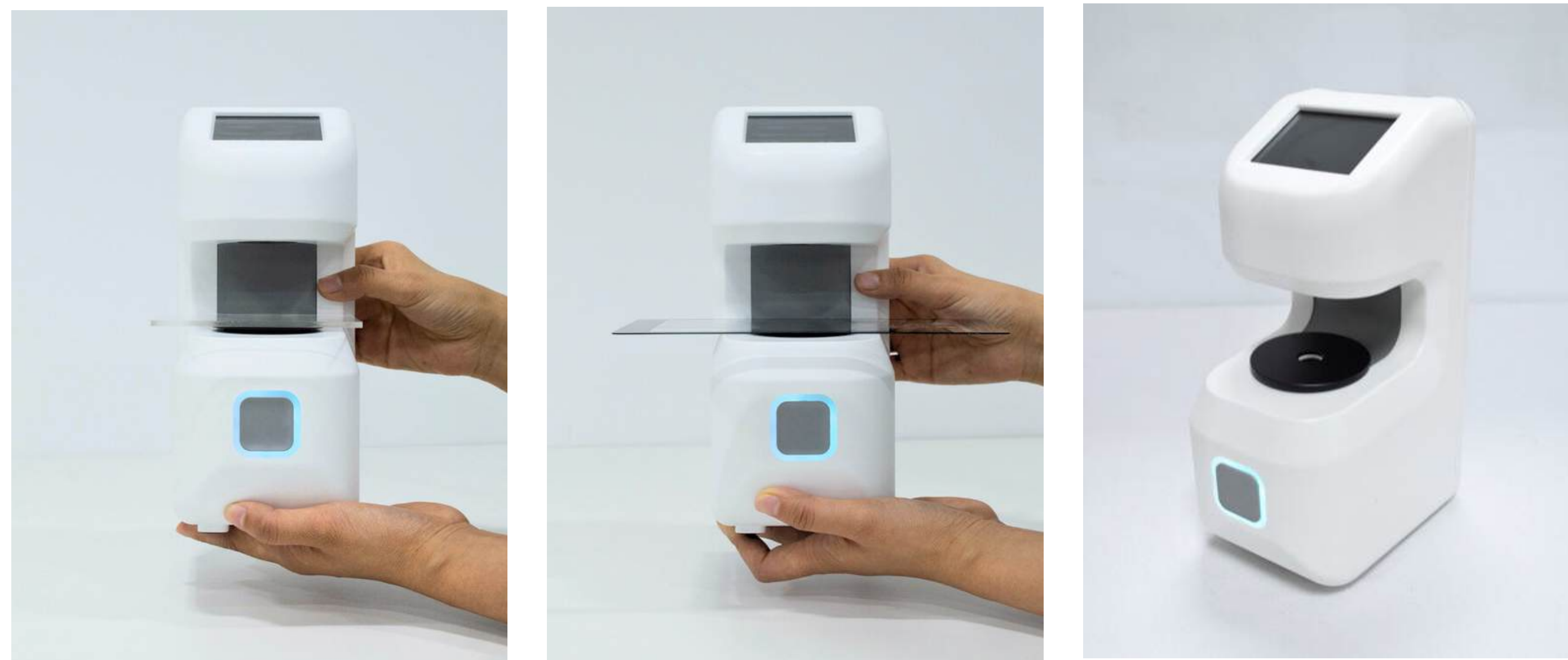
- ToronHaze™ TTH-10
- ToronHaze™ TTH-12
- ToronHaze™ TTH-13



FEATURES/ADVANTAGES

- **High Accuracy:** Featuring a display resolution of 0.01 and superior repeatability of ≤ 0.02 , this meter ensures precise and reliable measurements.
- **Portable and User-Friendly:** Compact and easy to carry, with an intuitive 2.8-inch touchscreen, making it convenient for testing haze and transmittance.

- **Multiple Light Sources:** Equipped with three different light sources to accurately measure haze and transmittance according to diverse industry standards.
- **Versatile Testing:** ToronHaze™ TTH-13 model supports three test apertures (21mm, 15mm, 12mm) for various sample sizes.



TECHNICAL SPECIFICATIONS

Parameter	ToronHaze™ TTH-10	ToronHaze™ TTH-12★	ToronHaze™ TTH-13
ASTM Haze/ Transmittance	✓	✓	✓
ISO Haze/ Transmittance	✗	✓	✓
Test Apertures	21mm	21mm, 15mm	21mm, 15mm, 12mm
Resolution	0.1%	0.01%	0.01%
Repeatability	0.1	0.05	0.02
Lithium Battery	✗	✓	✓
Weight	1.13kg / 2.49 lb	1.25kg / 2.76 lb	1.25kg / 2.76 lb

Standard Configuration:

- Instrument
- USB/Recharging Cable
- U Disk (QC software, manual)
- Warranty Card
- Calibration Certificate

Model-Specific Items:

- ToronHaze™ TTH-10: 1 test aperture.
- ToronHaze™ TTH-12: 2 test apertures, Charging Head.
- ToronHaze™ TTH-13: 3 test apertures, Charging Head, Black Carrying Case.

Optional Accessories:

- Haze meter cloth bag.



TECHNICAL SPECIFICATIONS


Parameter	ToronHaze™ TTH-10	ToronHaze™ TTH-12★	ToronHaze™ TTH-13
Light Source	CIE-A, CIE-C, CIE-D65		
Standards	ASTM D1003/D1044, ISO 13468/ISO14782, JIS K 7105/JIS K 7361/JIS K 7136		
Parameter	ASTM Haze / Transmittance	ASTM & ISO Haze / Transmittance	ASTM & ISO Haze / Transmittance
Spectral Response	CIE Spectrum Function Y/V(λ)		
Geometry	0/d		
Test Aperture	21mm	21mm, 15mm	21mm, 15mm, 12mm
Test Range	0-100%		
Resolution	0.1%	0.01%	0.01%
Repeatability	0.1	0.05	0.02
Sample Size	Thickness ≤40mm		

Parameter	ToronHaze™ TTH-10	ToronHaze™ TTH-12★	ToronHaze™ TTH-13
Display	2.8 inches touchscreen		
Data Storage	Mass Storage		
Interface	USB		
Power	DC 5V/2A	Rechargeable Lithium Battery	Rechargeable Lithium Battery
Working Temperature	5~40°C, Relative humidity 80% or below (at 35°C), no condensation		
Storage Temperature	-20°C ~ 45°C, Relative humidity 80% or below (at 35°C), no condensation		
Size	133mm x 99mm x 224mm (L x W x H)		
Weight	1.13kg (2.49 lbs)	1.25kg (2.76 lbs)	1.25kg (2.76 lbs)
Optional	Test Aperture with custom-made size		




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