



Capable of both vertical and horizontal positioning
Developed in pursuit of usability

HZ-V3

Haze Meter

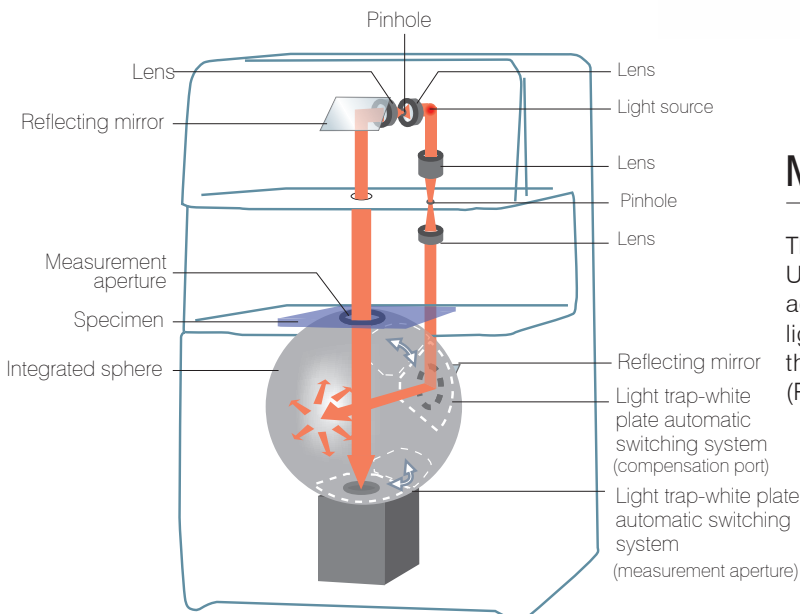
Quantifying the Haze of Transparent Specimen

Haze Meter is an instrument that measures an object's haze value, which is the ratio of total light versus diffused light that passes through an object. A totally translucent material will have a haze value of 0, and the value will increase as the amount of diffused light increases (making the light appear foggier). This instrument is applied in a wide range of commercial industries that handle translucent materials, such as plastics, glass, beverages, pharmaceuticals (liquid), cosmetics, and also films and encapsulants for liquid crystal displays, photovoltaic modules, etc. In order for us to respond to the voices of our customers and become able to handle the ever so diversifying specimens, HZ-V3 was developed with the pursuit of usability and accurate measurement. The instrument can be set either vertically or horizontally, depending on the specimen.

In Pursuit of Precise Measurements

The TM Double Beam Method Developed by SUGA

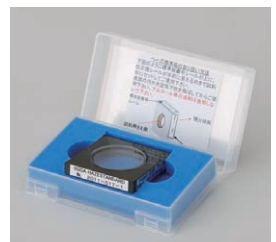
The TM Double Beam method is a system which continuously compensates the shift in the amount of light, which allows for stable measurement over a long period of time. The beam from the light source is divided into two highly parallel beams, and then automatically enter the integrated sphere alternately through the measurement aperture and the compensation port.



Measurement Accuracy

The attached calibration standard plate is traceable to the UK's National Physics Laboratory. The instrument's accuracy is established and maintained with Suga's JCSS light calibration technology. It can also be calibrated with the calibration standard plate specified in ASTM D1003 (PAT.).

Calibration standard plate (standard accessory)



Ideas for Usability

Vertical or Horizontal Positioning

This instrument can be set either vertically or horizontally depending on the size and shape of the specimen to be measured.

By setting the haze meter horizontally, specimens such as films and liquid cells can be fixed using the special specimen stage so that they can be measured under the same conditions each time.



By setting the haze meter vertically, plate-shaped specimens can be measured simply by placing it on top of the flat specimen stage.

Automatic Measurement after the Lid is Closed

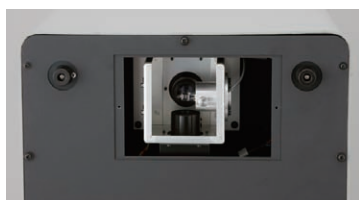
The automatic measurement mode allows the measurement to be performed automatically after the lid is closed with the specimen set inside.



Measurement duration:
max. 2.5 seconds

Easy Lamp Replacement

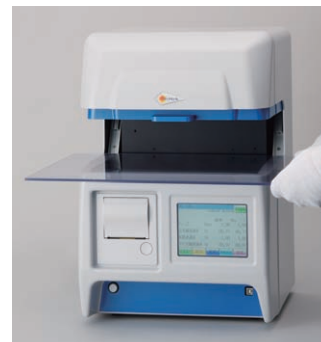
The new design has made the alignment procedure after the lamp replacement unnecessary. The lamp replacement procedure done at the back of the instrument can also be done with ease (approximately every 2000 hours).



Lamp replacement area

Flat Specimen Chamber for Large-sized Specimens

Specimens of size up to 260 x 180 x 30 mm can be set (when the instrument is positioned vertically). The stage is flat, making it possible to measure samples that are too big to be set in the room.



No Need for Complicated Procedures

ISO 14782* and ISO 13468-1** requires for the white standard plate to be placed before placing the specimen, but HZ-V3 is equipped with a light trap-white plate automatic switching system, allowing for measurements to be performed in a single action (PAT.).

* : ISO 14782 "Plastics—Determination of haze for transparent materials"

** : ISO 13468-1 "Plastics—Determination of the total luminous transmittance of transparent materials—Part 1 : Single beam instrument"

Enhanced Data Management System

Measurement data can be transferred to PC from USB interface with the Excel transfer software that comes as a standard accessory.

A One-in-all Unit with Touch Panel and Printer Built-in

Optical and operation units come in a single compact 32x 32 cm dimension (at vertical position), taking up little space for installation. Operation is made easy with its clear-to-see 5.7 inch high-definition TFT color touch panel.

At horizontal position

	std.	No.	5
Haze	1.14	1.12	
Tt	97.04	97.08	
Td	1.10	1.09	
Ip	95.94	95.99	

At vertical position

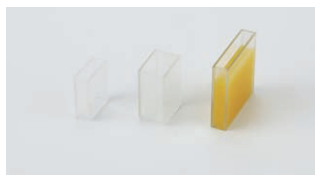
	std.	No.	5
Haze	1.14	1.12	
Tt	97.04	97.08	
Td	1.10	1.09	
Ip	95.94	95.99	

The touch panel will switch its display position depending on the position of the haze meter.



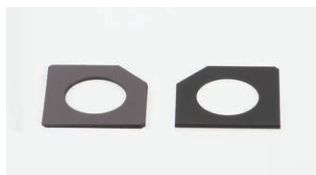
Various Attachments (option)

We provide many different attachments (specimen holders) for different kinds of specimens.



Cell (for liquid specimens)

Liquid cells with different size and thickness.



Magnet film holder

Flattens the soft and thin films on the measuring surface for more accurate measurement.



Foot switch

For large specimens that require both hands to measure.

The attachment of aperture diameter ϕ 7mm is also provided for JIS R 3212 to measure the haze of safety glazing materials after abrasion test.

Specification

Measurement method	TM Double Beam method	Stability	Within standard deviation of 0.02 Δ Tt (measuring 30 times in a row using air space after adjusting to standard)
Measuring light	C light and D ₆₅ light (A light is also available*)	Power source	AC100 - 240V 50/60Hz
Measurement items	Haze(Haze), total luminous transmittance(Tt), diffuse luminous transmittance(Td), parallel light transmittance(Tp)	Extradimension and weight	Approx. width 32 x depth 32 x height 48cm (at vertical position) (approx.18Kg)
Specimen dimension	Max. 260 x 180 x thickness 30mm Max. 260 x 145 x thickness 25mm (use specimen stage)	Attachments	Excel transfer software Calibration standard plate x1 (Select a plate from haze of 1%, 10%, 20%, total luminous transmittance value included)
Light source	Halogen lamp 12V 20W	Options	Foot switch Specimen holders (Liquid cells, magnetic film holder, Attachment for JIS R 3212: aperture diameter ϕ 7 mm)
Light receptor	Combination of photocell and filter	Standards	ASTM D1003, ISO 13468-1, ISO 14782 JIS K 7136, JIS K 7361-1, JIS K 7105, JIS R 3212 (A light)
Functions	Data memory (max. 500 data) Language changeover system (English and Japanese) Average (max. 99 times) / Automatic measurement mode	*When specifying A light, also select either C or D ₆₅ light.	
Measurement time	Maximum 2.5 sec.		
Display and control	5.7 inch high-definition TFT colour touch panel		
Printer	Prints the measuring light, measurement items and measured value		
Interface	USB2.0 B terminal (transfers measurement data to PC)		



Suga Test Instruments Co.,Ltd.
www.sugatest.co.jp/english

Our calibration department is conformity with ISO/IEC17025 and is accredited to meet the requirements for MRA of ILAC and APLAC.

ISO/IEC 17025: JIS Q 17025
(General requirements for the competence of testing and calibration laboratories)

MRA: Mutual Recognition Arrangement

ILAC: International Laboratory Accreditation Conference

APLAC: Asia Pacific Laboratory Accreditation Cooperation

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