NRI series IR Refractive Index Measurement System

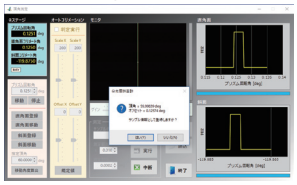
Measurement of refractive index of infrared window, infrared lens, chalcogenide glass

Based on the minimum deviation method (Fraunhofer method), monochromatic light of arbitrary wavelength (1 to 14 μm) is irradiated to a prism shaped sample, and the angle of transmitted light with respect to incident light is measured to measure the refractive index of the sample. The newly developed system can measure refractive index pricision 0.0001 which can not be obtained by conventional measurement method. The system is ideal for evaluating Ge, Si, ZnSe, KRS-5, chalcogenide glass which are used for infrared windows and infrared lenses and evaluating the infrared optical thin films.

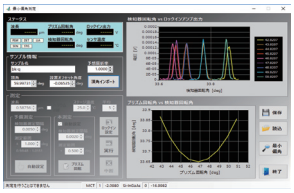
- High precision measurement of the refractive index (0.0001) is possible in the wavelength range 1 to 14 μm.
- Equipped with a temperature control function, the system can measure the difference in refractive index with temperature.

Measurement Items

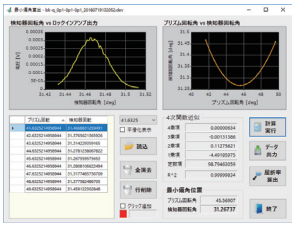
Apex angle Measurement



Minimum deviation measurement

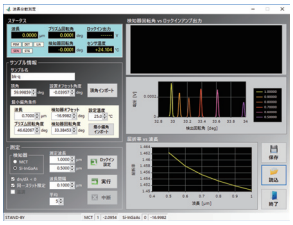


Minimum deviation calculation

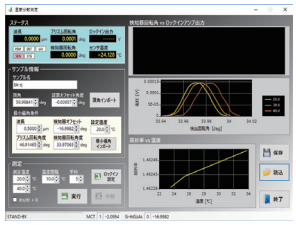


Refractive Index Calculation

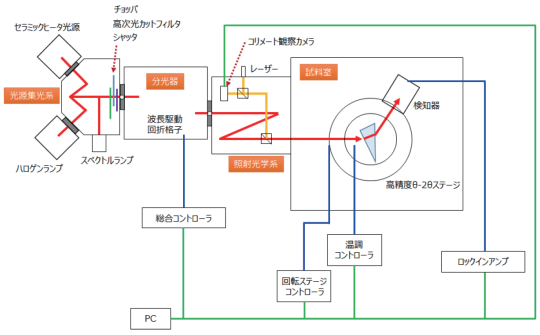
Wavelength dispersion measurement



Temperature dispersion measurement

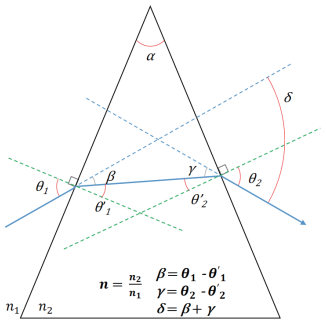


Block Diagram



Measurement principle

Refractive Index and Minimum deviation



Specifications

Measurement method	Minimum deviation (Fraunhofer method)
Measurement Items	Refractive index, Apex angle
	・Changes in refractive index by wavelength (dn / dλ)
	・Changes in refractive index by sample temperature (dn / dT)
Refractive index measurement range	1 ~ 4
Measurement precision	0.0001 （1×10^{-4}）
Measurement wavelength range	1 ~14 μ m
Irradiation wavelength range	400nm ~ 20μm*1
Temperature control range	–40~ 80℃*2
Irradiation size	approx. Φ8mm
Measurement functions	Apex angle, Determination of minimum deviation position, Refractive index
Measurement mode	1 point measurement, WL dependence, Temperature dependence
Setting parameters	Wavelength, Temperature, Expected refractive index
Saving format	Text format (CSV format)

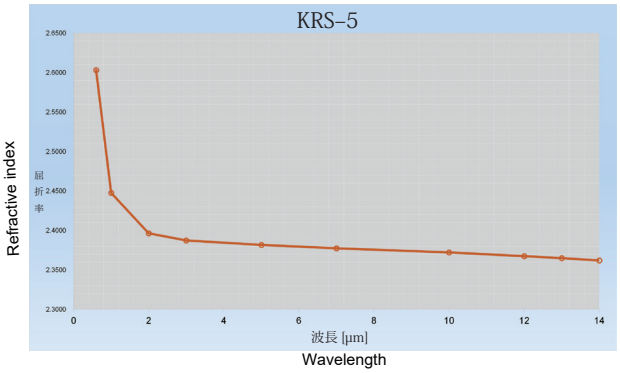
＊ 1 In order to perform measurement in 14 to 20μm, it is necessary to add a higher order light cut filter.

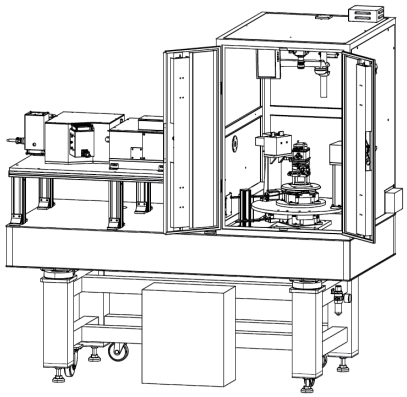
＊ 2 Due to the set temperature of the temperature controller, it may differ depending on the measurement sample.

Standard configuration

- ●Ceramic heater light source
- ●Halogen lamp light source
- ●Helium lamp (d line 587.56 nm)
- ●Light source converging system
- ●Monochromator and gratings
- ●Irradiation optical system
- ●Laser for apex angle measurement
- ●Rotating stage and controller
- ●Sample holder
- ●Temperature control stage and controller
- ●Lock-in amplifier
- ●Sample compartment and frame
- ●Detector
- ●General controller
- ●Software
- ●Control PC

Measurement data





Unilities

・Power: AC100V 35A

・Main unit : Approx . W1800× D900×H1800mm

＊ Excluding PC and rack

●Specifications and appearance described are subject to change without prior notice

<NRIseries–1810049N>

BUNKOUKEIKI CO., LTD.

http://www.bunkoukeiki.co.jp/

4-8, Takakura-cho, Hachioji-shi, Tokyo, 192-0033, Japan

Tel : + 81-42-646-4123

Fax : + 81-42-644 3881

Sales office

3-23-1, Yushima, Bunkyo-ku, Tokyo, 113-0034, Japan Tel: + 81-3-3837-1021

●Contact