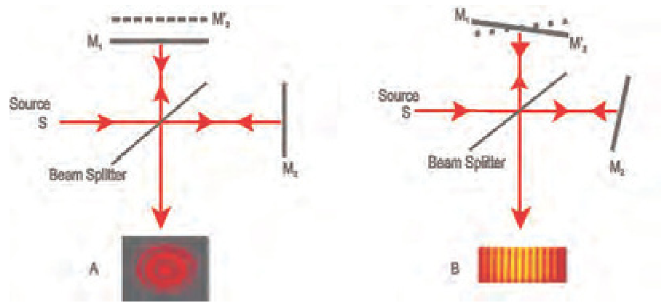
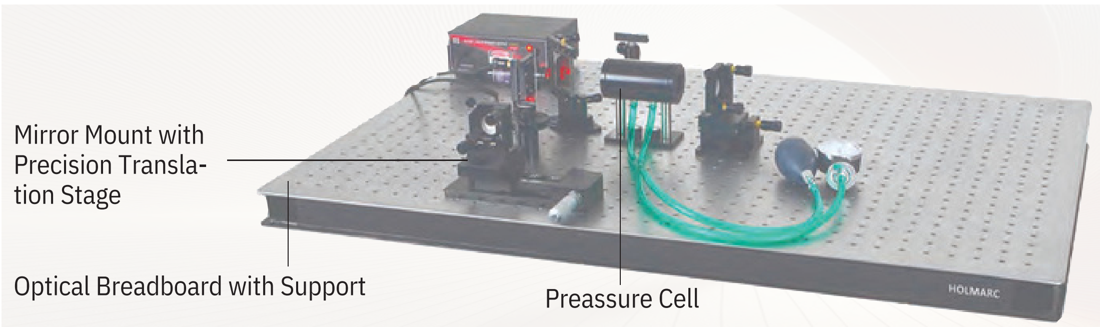
Michelson Interferometer (Standard Model)

Model: FOL - MI

Michelson interferometer is a widely used instrument for measuring wavelength of light, refractive index of transparent materials etc. The interferometer (Model No. HO-ED-INT-06) is designed and constructed in modular fashion. The beam splitter is designed to reflect 50% of the incident light and transmit the other 50%. The incident beam therefore is split into two beams; one beam is reflected towards mirror M1, the other is transmitted towards mirror M2. Half the light is transmitted through the beam splitter to M1 and the other half is reflected by beam splitter to M2. The reflected beams from M1 and M2 superimpose at the beam splitter and the interference pattern can be observed on the screen.



Formation of fringes in a Michelson interferometer



FRATURES

The instrument uses laser diode as light source

Precision kinematic mounts for optical components

The optics used in this device are of research quality

The assembling and alignments are easy, can assemble individually

Experiment Possible

To determine wavelength of laser beam

The wavelength of laser is calculated by ; $\lambda = (2d / N)\,\Delta$

where 'd' is the change in position that occurs for 'N' fringes to pass and Δ is the calibration constant of the micrometer

To find refractive index of a transparent material

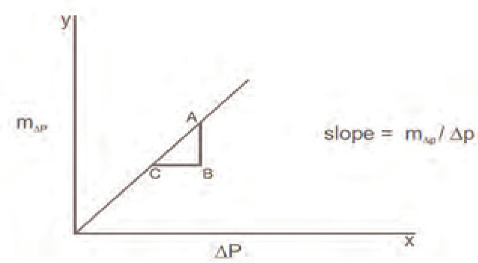
The light passes through a greater length of glass as the plate is rotated. The change in the path length of the light beam as the glass plate is rotated and relates the change in path length with the laser beam through air.

The refractive index of glass slide,

$N = (2t - N\lambda)(1 - \cos\theta) / 2t(1 - \cos\theta) - N\lambda$

Where t is the thickness of the glass slide, N is the number of fringes counted, λ is the wave length of light used and θ is the angle turned for N fringes.

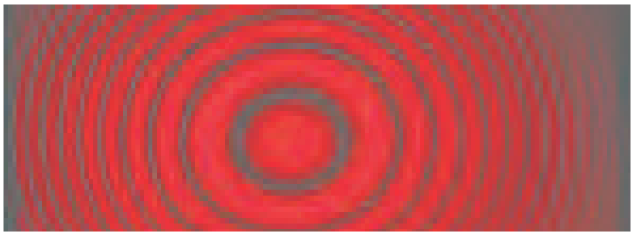
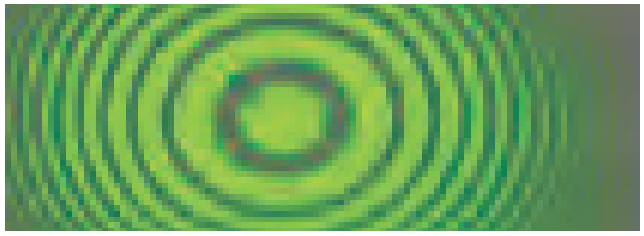
To study refractive index change in air under different pressures and determination of refractive index of air



Let λ be the wavelength of light, n the refractive index of air at atmospheric pressure, d the length of the air cell, Patm the current atmospheric pressure and ΔP the pressure change.

The relationship between the pressure change ΔP and the number of fringe shift mΔP is given by,

$m_{\Delta P} = (2d(n-1)/\lambda)(\Delta P / P_{atm})$

Effective arrangement of Interferometer Circular Fringes

Scope of Supply

Optical Breadboard with Support

Model No.	:	ED-INT-06-BBS
Dimensions	:	800mm x 600mm
Material	:	Stainless Steel
Quantity	:	1 No.

Beamsplitter Mount

Model No.	:	ED-INT-06-BSM
Adjustment Range	:	2 degrees
Material	:	Black anodized Aluminium alloy
Quantity	:	1 No.

Mirror Mount with Precision Translation

Model No.	:	ED-INT-06-MMPT
Adjustment Range	:	+/-3 degrees
Material	:	Black anodized Aluminium alloy
Least count	:	0.01 mm
Quantity		1 No.

Screen with Mount

Model No.	:	ED-INT-06-SM
Dimension	:	75mm x 75mm
Quantity	:	1 No.

Mirror with Cell

Model No.	:	ED-INT-06-MC
Diameter	:	25 mm
Thickness	:	6 mm
Material	:	Borofloat
Coating	:	Aluminium
Quantity	:	2 Nos.

Glass Slide

Model No.	:	ED-INT-06-GS
Dimension	:	75 mm x 25 mm
Thickness	:	1 mm
Material	:	Float
Quantity	:	5 Nos.

Diode Laser with Power supply (Green)

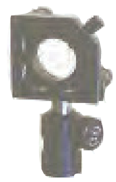
Model No.	:	ED-INT-06-DLPG
Wave length	:	532 nm
Optical power	:	5 mW
Quantity	:	1 No.

Accessories

Thumb Screws, Dust Protective Cover
User Manual

Kinematic Laser Mount

Model No.	:	ED-INT-06-KLM
Material	:	Black anodized
Adjustments	:	Aluminum alloy
Adjustment Range:		Using 80 tpi lead screws
		+/-3 degrees
Quantity	:	1 No.



Mirror Mount with Translation

Model No.	:	ED-INT-06-MMT
Adjustment Range:		+/-3 degrees
Fine adjustments	:	Using 80 tpi lead screws
Material	:	Black anodized
	:	Aluminium alloy
Quantity	:	1 No.

Rotation Stage

Model No.	:	ED-INT-06-RS
Resolution	:	1° / division
Material	:	Black anodized
	:	Aluminium alloy
Quantity		1 No.

Pressure Cell

Model No.	:	ED-INT-06-PC
Length	:	10 cm
Pressure Range	:	0 - 300 mm Hg
Quantity	:	1 No.

Beamsplitter

Model No.	:	ED-INT-06-BS
Dimension	:	50 mm x 50 mm
Thickness	:	6 mm
R / T ratio	:	50 / 50
Material	:	N-BK7
Coating	:	Aluminium
Quantity	:	1 No.

DiodeLaserwith Powersupply(Red)

Model No.	:	ED-INT-06-DLPR
Wave length	:	650 nm
Optical power	:	5 mW
Quantity	:	1 No.

Connect with our engineers and discuss your application needs and unique requirements. You can be sure that you will receive rapid response and service