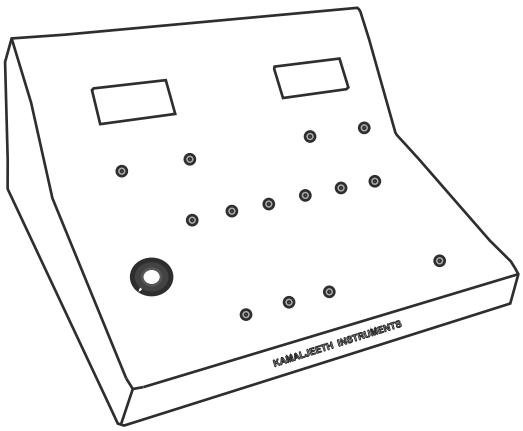
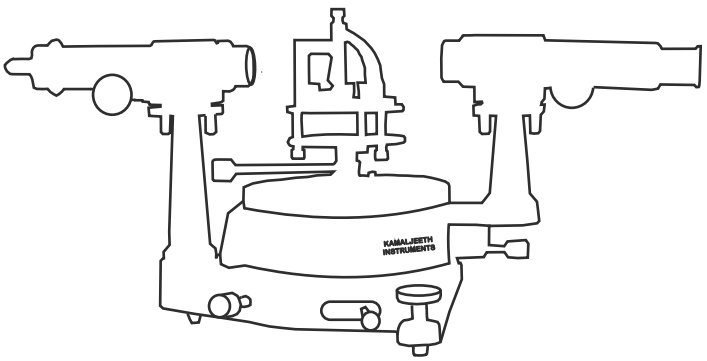
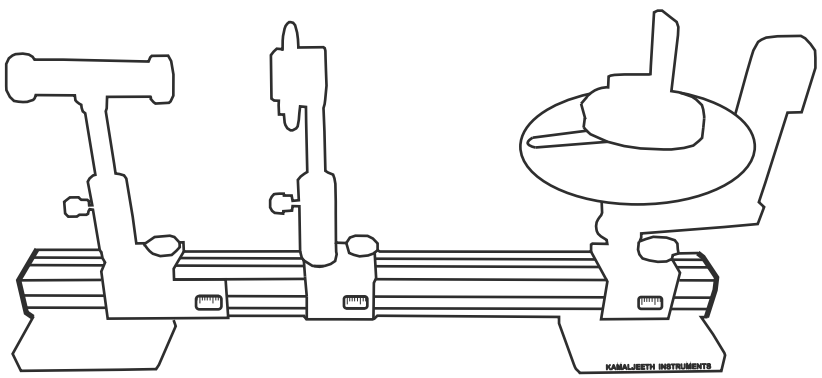
KAMALJEETH INSTRUMENTS







MANUFACTURER OF PHYSICS INSTRUMENTS SINCE 1990

CATALOGUE 2021

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#610, 5th main, 8th cross
Tatanagar, Bangalore - 560092, INDIA

ABOUT US

Kamaljeeth Instrumentation and Service Unit was established in the year **1990** by **Dr. Jeethendra Kumar P K** in Bangalore, India. He had served as professor of Physics in Mangalore University prior to the establishment of Kamaljeeth Instrumentation and Service Unit.

In 1990, we started catering to the service requirements of schools and colleges around Bangalore. Dr. Jeethendra Kumar P K, began developing instruments using his own ideas to overcome the shortcomings of the already existing models and his focus was on incorporate accuracy in design, make user friendly apparatus and making sturdy for prolonged usage. As a result, students got very accurate results and a huge response followed from the admiring teachers. We also kept evolving by matching our services to the demand. The resulting growth has placed us now as one of the largest manufacturers of Physics and Electronic laboratory equipments in India.

Today, we are proud of having supplied our instruments to more than **1000** Institutions which include Basic science colleges, Engineering and technological institutes, Research institutes and Universities both in India and internationally during the last 30 years.

With ongoing dedicated Research and Developmental activities and constant feedbacks from our esteemed customers, today we are able to manufacture and deliver the best quality products at competent prices. We are also thankful to our advisors, Dr. S P Basavaraju and D R Baluragi and for their constant guidance, support and sharing of their immense knowledge.

Dr. S P Basavaraju served at BIT, Bangalore for 28 years until his retirement and his name is familiar to the Students and Physics Teachers of V T U through his text book on Engineering Physics. After retirement also, he is active continuing his writing & is giving us constructive suggestions in developing many new apparatus, improving their design with focus on quality, accuracy and ease of use by students.

Kamaljeeth Science Foundation a sister concern of Kamaljeeth Instrumentation and Service Unit was established in the year 2006 at Mangalore, India. This is a social initiative started by Dr. Jeethendra Kumar with a vision to popularise science teaching in rural and less privileged schools of India.

Prof. D R Baluragi, former Director of Belgaum science centre and National Awardee for popularising science & technology has been actively involved in fulfilling this vision of Kamaljeeth Science Foundation. He has visited more than 300 schools in and around Mangalore region and conducted numerous workshops to demonstrate basic science concepts through low cost science experiment kits.

Manufacturing Certification: The Products listed in this catalogue are manufactured by Kamaljeeth Instrumentation and Service Unit which is owned by us. We are the sole designer and manufacturer of all these products employing mostly our own designs. All apparatus under-go intensive testing before they are dispatched to our customers. We do provide test certificates accompanying the instruments on a prior request by the customers. We also give the relevant manufacturing certificates on a prior request.

Lab Experiments (LE) Journal: In the year 2001, We started a quarterly journal named Lab Experiments (LE), which offers a platform for researchers to publish new experiments in Physics and Electronics. LE has now become a widely referred journal throughout India for Physics and Electronics Lab Experiments.

Dr. Jeethendra Kumar P K
Founder

Dr. S P Basavaraju
Chief Technical Advisor

D R Baluragi
Professor & Social Worker

CATALOGUE 2021

CONTENTS

ABBE's REFRACTOMETER

Model: ABB-201/001

Experiment(s):

1. Determination of refractive index of liquids and solids

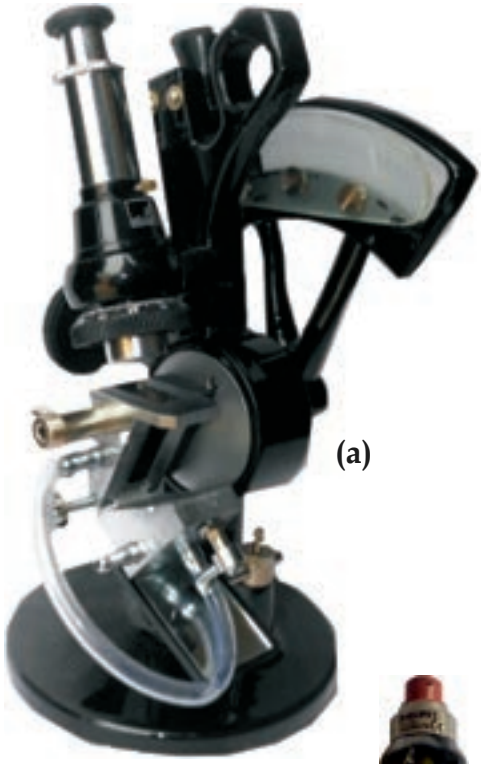
(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-12, No.3, Page-171
Lab Experiments Journal vol-16, No.1, Page-32

Experiment setup consists:

a) Abbe's refractometer

b) Sodium vapour lamp set



(a)

(b)

Specifications:

a) Abbe's refractometer
Range: 1.3 - 1.7
Resolution: 0.001
Minimum sample quantity required: 1 ml
Calibration: Yes using provided standard liquid
Type: Split prism
Measurement of R.I at varying temperature: Available through external feed
Illumination: Through adjustable mirror
Eyepieces: 2 nos - For R.I scale and Bright and dark region viewing
Base: Cast iron
Moving parts: Brass

b) Sodium vapour lamp set (Optional)
Lamp: Philips / Thorne 35 W
Lamp house: Single lamp type with fixed slit openings
Transformer: 35 W, Instant On type
Rated Input: 220 V/50 Hz
or 110 V/60 Hz

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Model: AB-201/002

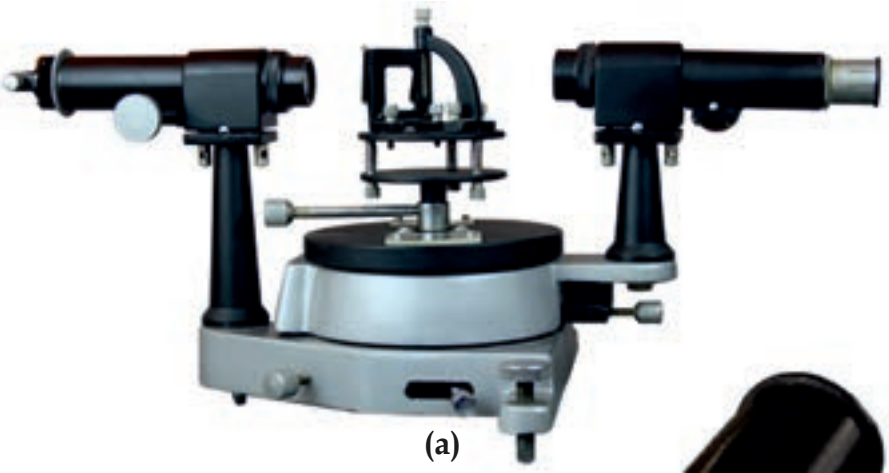
ABSORPTION SPECTRUM OF SOLIDS AND LIQUIDS

Experiment(s):

1. Absorption spectrum of iodine and determination of dissociation energy and force constant

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-15, No.2, Page-130



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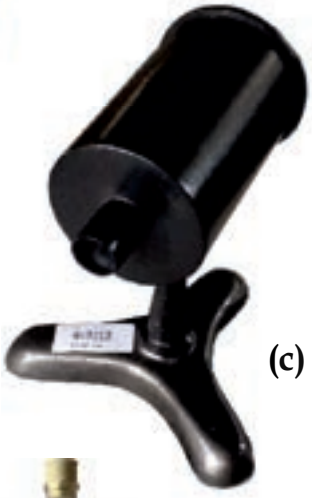
(b)



(c)

(d)

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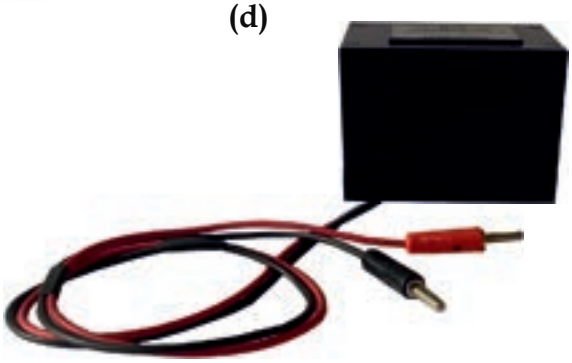

Specifications:

a) Spectrometer
Scale: 6" diameter (Brass)
Base: Cast iron with levelling screw
All moving parts made of brass for accuracy
Collimator with adjustable slit
Horizontal axis alignment for collimator: Yes
Horizontal axis alignment for telescope: Yes
Centre Table: Height adjustable with provision for prism and grating holder
Telescope with user changeable cross wire and eyepiece

b) Diffraction grating
Grating constant: 15000 Lines/Inch
Window size: 40 mm x 30 mm

c) White light source
Incandescent light source giving continuous spectrum

d) Tube for liquid samples
Cylindrical tube having wide mouth opening with leak free silicone cork

e) Tube for gaseous samples
Cylindrical tube having wide mouth opening with leak free silicone cork
Heating coil and power supply for iodine sample
Height adjustable stand

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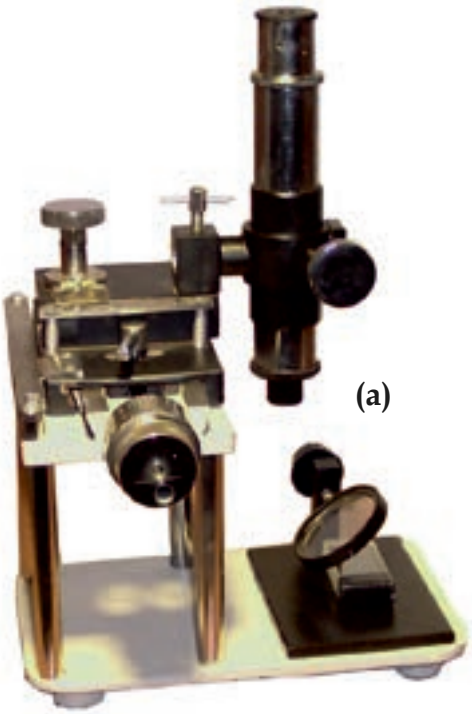
Experiment(s):

1. Determination of thickness of thin object (paper)

2. Determination of thickness of wire

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-14, No.2, Page-100



(a)

(b)

Experiment setup consists:

a) Microscope

b) Sodium vapour lamp set

Specifications:

a) Microscope
Air-wedge microscope
Reflector: 45° turning glass plate
Acrylic pre-cut assembly with magnetic base
Fixed glass plates with sandwiched strip
Base Material: Cast iron
Moving components: Brass
Reading: Screw gauge type reading micrometer

b) Sodium vapour lamp set (Optional)
Lamp: Philips / Thorne 35 W
Lamp House: Single lamp type with fixed slit openings
Transformer: 35 W, Instant ON type
Rated Input: 220 V/50 Hz
or 110 V/60 Hz

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Model: AS-1208/004

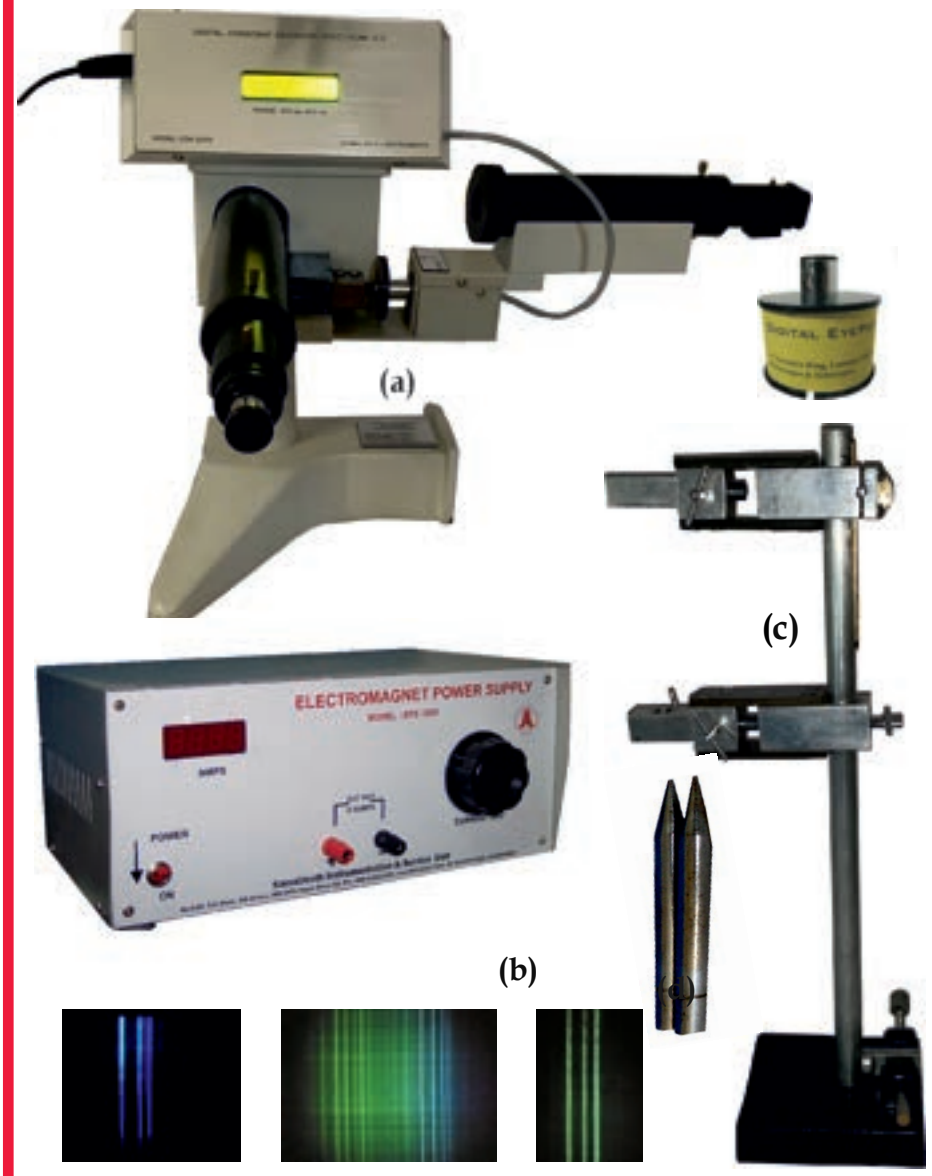
ARC SPECTRUM

Experiment(s):

1. Spectral signature of various metal electrodes

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-14, No.1, Page-34



Specifications:

a) Digital Constant Deviation Spectrometer (CDS)
Range: 400 nm to 800 nm
Resolution: 1 nm
Movement: Manual/Mechanical
Output: Shown on a digital display
Rated Input: 220 V/50 Hz
or 110 V/60 Hz

Camera
Resolution: 1.3 MP
Interface: USB
Software: Kamaljeeth's camera measurement software (Included)

b) Arc power supply
Output: 75 V/5 A (DC)
Display: Digital current meter
Variation: Built-in dimmerstat
Rated Input: 220 V/50 Hz
or 110 V/60 Hz

c) Arc stand
Height: Variable
Distance between rods: Variable
Mount: Arc rods up to 12 mm

d) Arc rod pairs
Purity: >99.5%
Dia: 8 mm to 12 mm
Material: Copper, Brass, Iron, Carbon, Aluminium & Zinc (any 3)

BABINET COMPENSATOR

Model: BC-201/005

Experiment(s):

1. Measurement of Birefringence of mica

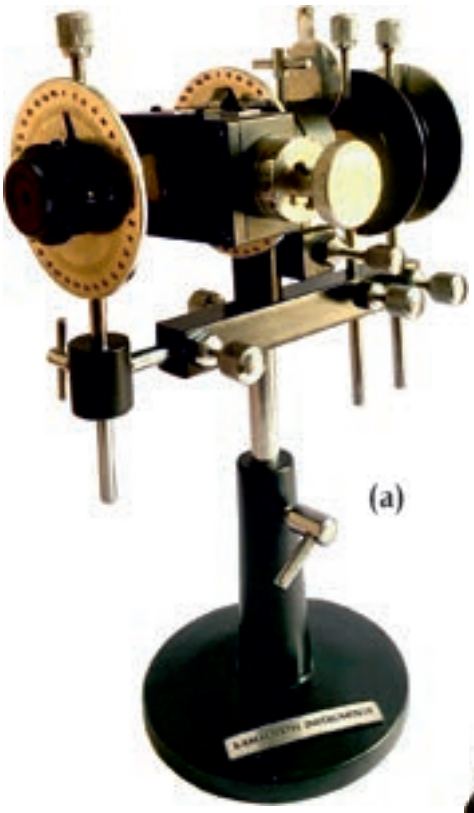
(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-7, No.3, Page-203
Lab Experiments Journal vol-15, No.3, Page-210

Experiment setup consists:

a) Babinet compensator

b) Sodium vapour lamp set



(a)

(b)

Specifications:

a) Babinet compensator assembly consists of

Polarizer: Graduated 360° scale with LC 1°, mountable on to Upright

Mica Sheet
Fixed on a frame

Analyzer: Graduated 360° scale with LC 1°, mountable on to upright

Quartz crystal box
consists of 2 quartz wedges cut perpendicularly of its optical axes
Reading: Screw gauge type reading micrometer
Movement: 25 mm
Resolution: 0.01 mm

Telescope with circular graduation

b) Sodium vapour lamp set
Lamp: Philips / Thorne 35 W
Lamp house: Single lamp type with fixed slit openings
Transformer: 35 W, Instant ON type
Rated Input: 220 V/50 Hz
or 110 V/60 Hz

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Model: BLW-2005/006

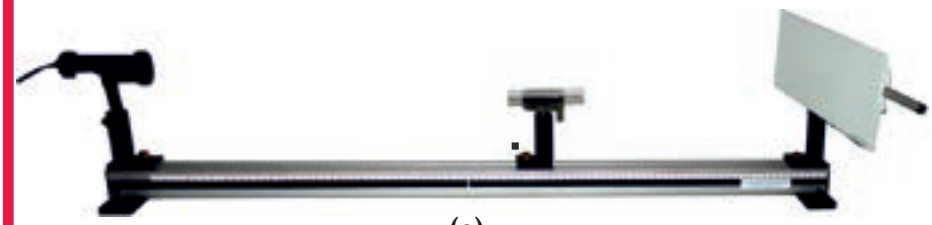
BASIC LASER EXPERIMENTS

Experiment(s):

1. Determination of slit width.
2. Determination of wavelength of Laser using mm scale as grating.
3. Determination of wavelength of Laser using diffraction grating.

(For more details, procedure & manual visit: www.kamaljeeth.net)

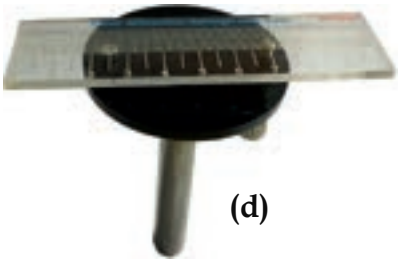
Reference : Lab Experiments Journal vol-4, No.1, Page-1



(a)

(b)

(c)



(d)

(e)

Diffraction pattern - slit

Diffraction pattern - grating

Experiment setup consists:

a) Optical bench with fixtures & screen
b) Semiconductor diode Laser with power supply
c) Adjustable slit
d) mm graduation scale & stand
e) 3 in 1 grating

Specifications:

a) Optical bench
Length: 1 m
Fixture: Three (for Laser source, grating/scale & screen)
Material: Aluminium & cast iron

b) Semi-conductor diode Laser
Wavelength: 625 nm (Red)
Power: External power supply, mains operated (Included)
Base: Adjustable height
Power: 2 mW

c) Adjustable slit
Maximum slit width: 5 mm
Minimum slit width: 0.1 mm
Slit length: 15mm

d) mm graduation scale
mm graduation on acrylic scale magnetically placed on base

e) 3 in 1 Grating
3 gratings of grating constant 100 LPI, 300 LPI & 600 LPI

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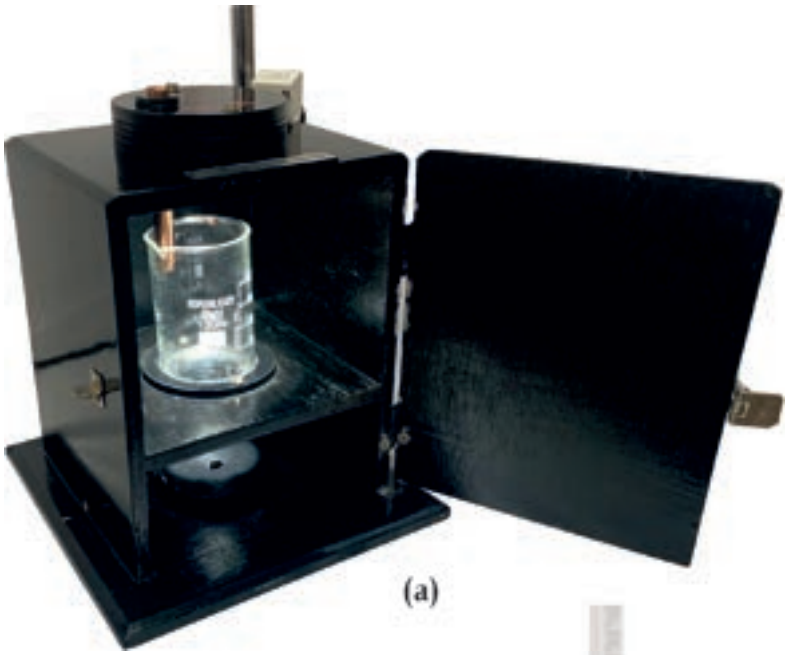
Experiment(s):

1. Determine the absorption co-effiecient of potassium permanganate

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-9, No.3, Page-240



(a)

(b)

(c)

Experiment setup consists:

a) Light and sensor arrangement

b) Relative light intensity meter

c) Burette

Specifications:

a) Light and sensor arrangement
Chamber: Illuminated wooden box with sensor and provision for droplet liquid insertion
Capacity: up to 50 mm of liquid wall
Illumination: LED type
Sample insertion: Via burette
Fixture: Burette clamp and holder
Rated Input: 220 V/50 Hz
or 110 V/60 Hz

b) Relative light intensity meter
Measures relative light intensity with range selection switch
Type: Detection of current variation through LDR
0.001 mA to 199.9 mA
Material: Acrylic body
Rated Input: 220 V/50 Hz
or 110 V/60 Hz

c) Burette
Capacity: 50 ml
Flow: Flow control knob
Material: Glass

Model: WB-501/008

BI-PRISM USING LASER

Experiment(s):

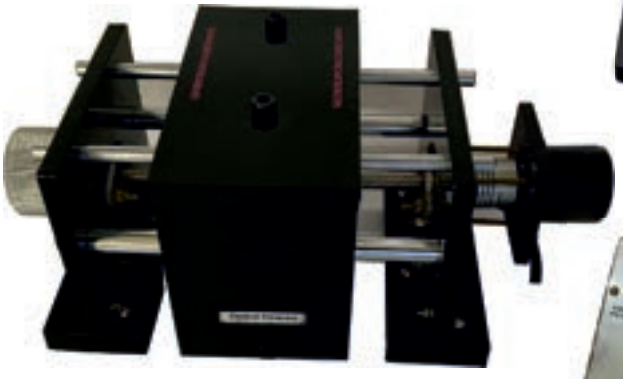
1. Determination of wavelength of Laser by Bi-Prism

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-18, No.1, Page-1

(a)

(b)



(c)

Experiment setup consists:

a) Laser

b) Bi-prism

c) Light detecting microscope

Specifications:

a) Laser
Type: Semiconductor diode Laser
Wavelength: 625 nm (Red)
Output Power: 3 mW
Mount: Cast iron base with levelling screw
Power supply:
Output: Suitable for 3 mW & 5 mW semiconductor Lasers
Rated Input: 220 V/50 Hz
or 110 V/60 Hz

b) Bi-Prism
Moulded bi-prism on a stand
Material: Glass, R.I 1.54

c) Light detecting microscope
Bed travel: 100 mm (one axis)
Resolution: 0.001 mm
Output: Displayed in mm
Sensor: Photo detector
Base: Cast iron

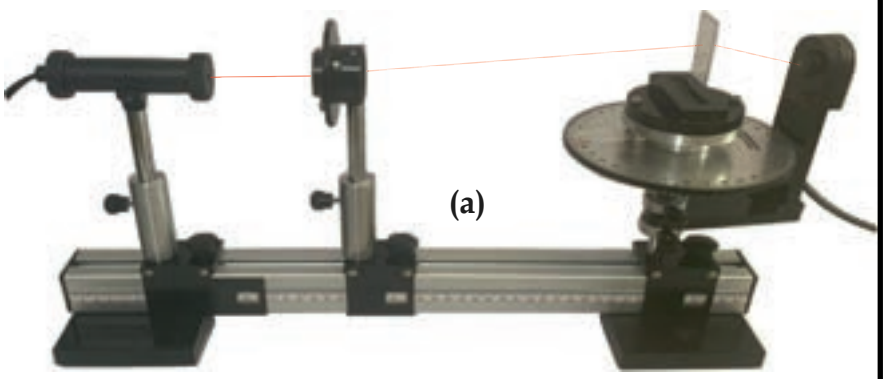
Experiment(s):

1. Determination of polarization angle or Brewster's angle.

2. Determine refractive index of sample

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-11, No.2, Page-89
Lab Experiments Journal vol-12, No.3, Page-190



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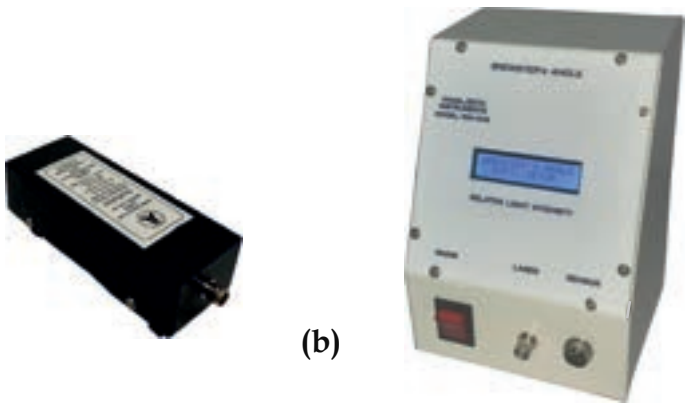

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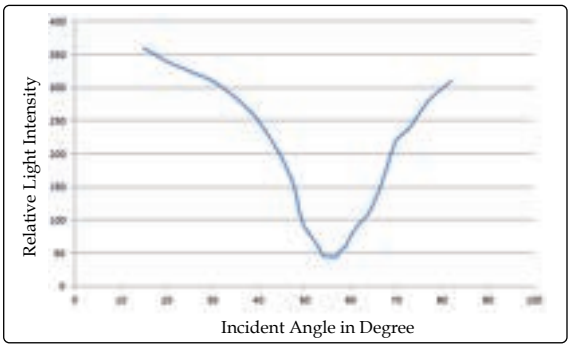


Experiment setup consists:

a) Optical bench Goniometer

b) Laser power supply and Laser detector

Specifications:

a) Optical bench goniometer:
Bench Length: 500 mm
Sliders: 3 (Laser, Polarizer & Goniometer)
Material: Cast iron heavy base with leveling screw, hardened aluminium rail

Semi-conductor diode Laser
Laser: 650 nm (Red)
Power: 5 mW

Polarizer
Graduated on 360° rotating platform

Goniometer
Graduated on 360° Fixed Platform with rotating sample bed and rotating pin hole sensor

b) Power supply and detector:
Power Supply: Capable of powering up to 10 mW semiconductor Laser
Detector: Connected to relative Light intensity meter with auto calibration

Model: DP-201/010

CAUCHY's CONSTANT / DISPERSIVE POWER OF A PRISM

Experiment(s):

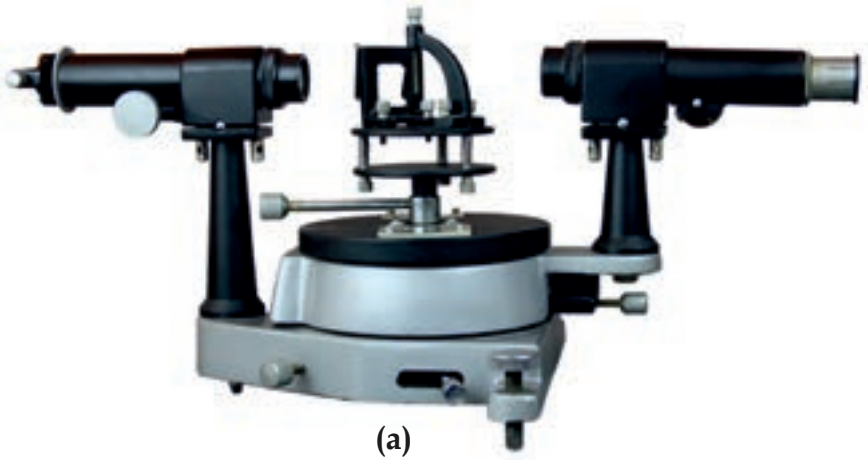
1. Determination of dispersive power of prism

2. Determination of refractive index of a prism

3. Determination of Cauchy's constant

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-16, No.1, Page-24



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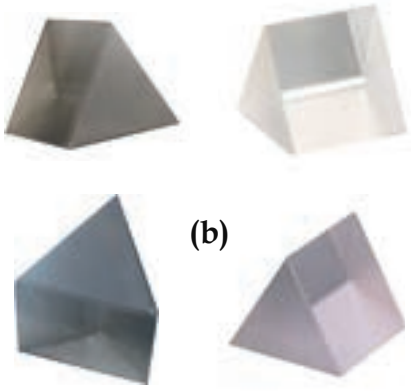

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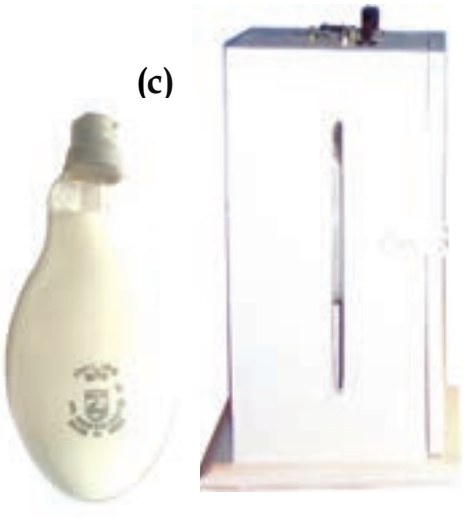


(c)

Experiment setup consists:

a) Spectrometer

b) Prisms (optional)

c) Mercury vapour lamp

Specifications:

a) Spectrometer
Scale: 6" diameter (Brass)
Base: Cast iron with levelling screw
All moving parts made of Brass for accuracy
Collimator with adjustable slit
Horizontal axis alignment for collimator: Yes
Horizontal axis alignment for telescope: Yes
Centre table: Height adjustable with provision for Prism and grating holder
Telescope with user changeable cross wire and eyepiece

b) Prisms (optional):
Double Extra Dense Flint (DEDF), Extra Dense Flint (EDF), Quartz and Calcite
Size: 15 mm to 25 mm

c) Mercury vapour lamp
Bulb: Philips/Osram
Power: 160 W
Transformer free operation
Enclosure: Wooden with slits
Rated Input: 220 V/50 Hz
or 110 V/60 Hz

CIRCULAR HOLE DIFFRACTION

Model: LDS-201/011

Experiment(s):

1. Determination of wavelength of Laser

2. Determination of diameter of aperture

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-3, No.4, Page-284

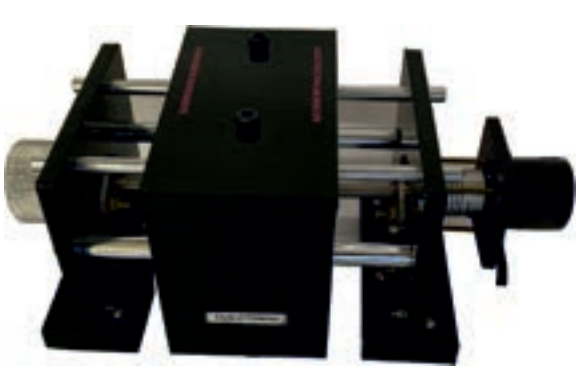
Experiment setup consists:

a) Laser & power supply

b) Light detecting microscope

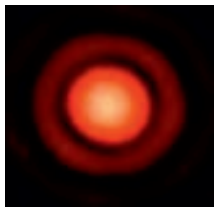
c) Single hole circular slit

(a)



(b)

(c)



Specifications:

a) Laser
Type: Semiconductor diode Laser
Wavelength: 625 nm (Red)
Output power: 3 mW
Mount: Cast iron base with levelling screw

Power supply
Output: Suitable for 3 mW & 5 mW semiconductor Lasers
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Mains cord: 2 pin

b) Light detecting microscope
Bed travel: 100 mm (One Axis)
Resolution: 0.001 mm
Output: Displayed on metre in mm
Sensor: Photo detector
Base: Cast Iron

c) Circular hole slit
Mount: Suitable to be fitted on Laser
Hole dia: 1 to 2 mm

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Model: COR-201/012

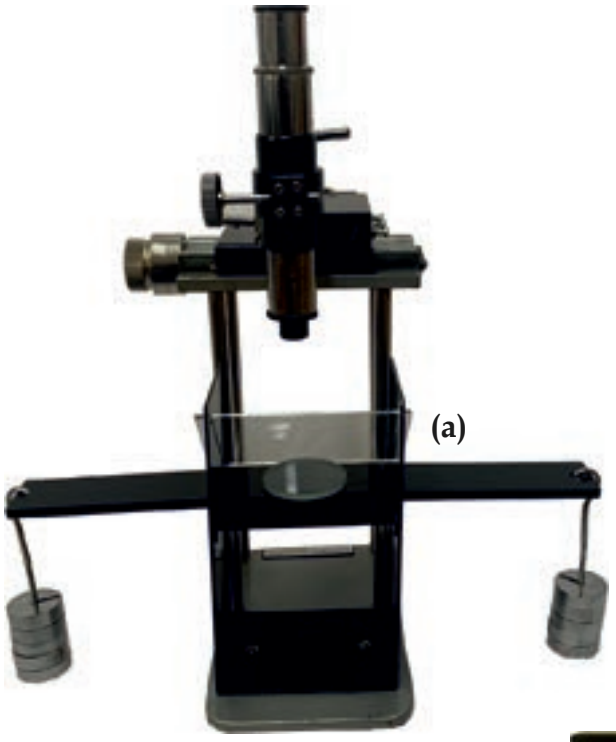
CORNU's APPARATUS

Experiment(s):

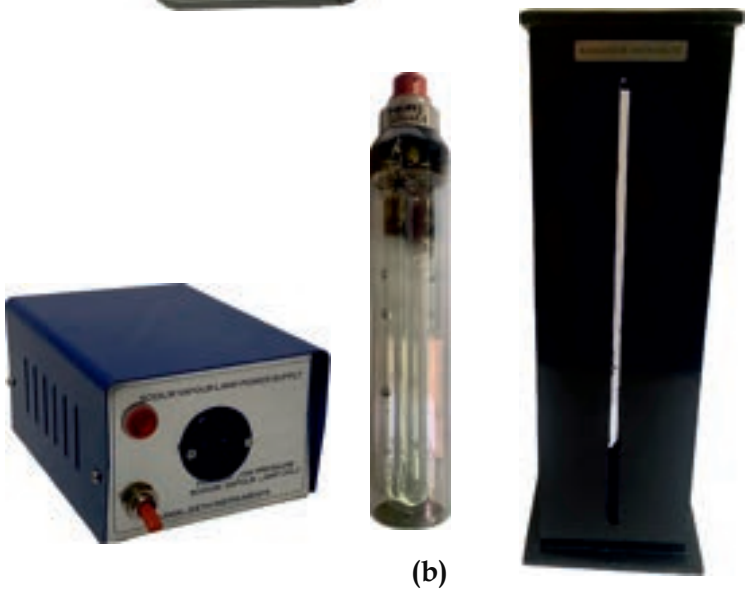
1. Cornu's elliptical and hyperbolic fringes and determination of elastic constant of an acrylic beam

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-3, No.3, Page-207



(a)



(b)

Experiment setup consists:

a) Cornu's microscope

b) Sodium vapour lamp set

Specifications:

a) Cornu's microscope
Cornus microscope
Reflector: 45° fixed acrylic plate
Base Material: Cast iron
Height: Fixed
Focus: Manual
Moving components: Brass
Reading: Screw gauge type reading micrometer
x-movement: 50 mm
Resolution: 0.01 mm
y-movement: 50 mm
Resolution: 0.01 mm

b) Sodium vapour lamp set (Optional)
Lamp: Philips / Thorne 35 W
Lamp House: Single lamp type with fixed slit openings
Transformer: 35 W, Instant ON type
Rated Input: 220 V/50 Hz
or 110 V/60 Hz

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Experiment(s):

1. Determination of size of the particles

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-15, No.2, Page-115

Experiment setup consists:

a) Laser & power supply

b) Lycopodium slide

c) Lycopodium screen

d) Measuring tape

(a)

(b)

(d)

(c)

Specifications:

a) Laser
Type: Semiconductor diode Laser
Wavelength: 625 nm (Red)
Output power: 3 mW
Mount: Cast iron base with levelling screw

Power supply
Output: Suitable for 3 mW & 5 mW semiconductor Lasers
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Mains cord: 2 pin

b) Lycopodium slide
Lycopodium powder sandwiched between glass plates with a stand

c) Lycopodium screen
Acrylic semi transparent screen graduated in cm

d) Measuring Tape
Length: 3 m

Model: FP-201/014

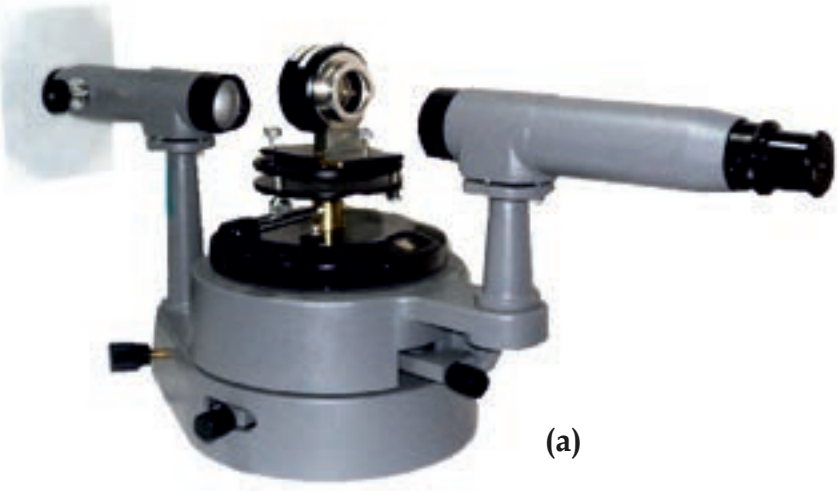
FABRY-PEROT ETALON

Experiment(s):

1. Measurement of Etalon parameters

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-4, No.4, Page-263
Lab Experiments Journal vol-15, No.2, Page-121



(a)

(b)

Experiment setup consists:

a) Fabry Perot Etalon mounted on spectrometer

b) Sodium vapour lamp set

Specifications:

a) Fabry Perot Etalon mounted on spectrometer
Scale: 6" diameter (Brass)
Base: Cast iron with levelling screw
All moving parts made of Brass for accuracy
Collimator with adjustable slit
Horizontal axis alignment for collimator: Yes
Horizontal axis alignment for telescope: Yes
Centre Table: Height adjustable with provision for Prism and grating holder
Telescope with user changeable cross wire and eyepiece
Etalon diameter: 30 mm
Spacing: 2 mm
Pine hole camera: Yes (removable)

b) Sodium vapourlamp set (Optional)
Lamp: Philips / Thorne 35 W
Lamp House: Single lamp type with fixed slit openings
Transformer: 35 W, Instant ON type
Rated Input: 220 V/50 Hz
or 110 V/60 Hz

FOCAL LENGTH OF LENS & MIRRORS

Model: AOB-312/015

Experiment(s):

1. Determination of focal lengths of convex/concave lens and mirrors

(For more details, procedure & manual visit: www.kamaljeeth.net)

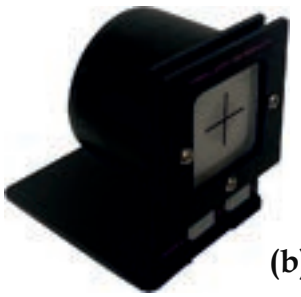
Reference : Lab Experiments Journal vol-13, No.3, Page-162

Experiment setup consists:

a) Optical bench

b) Light source & screen

c) Lens and mirrors



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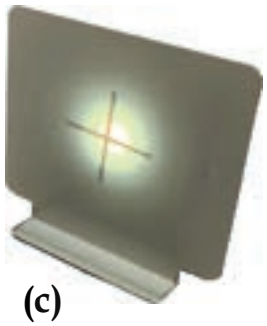

(c)

Concave Lens | Concave Mirror | Convex Lens | Convex Mirror

(d)

Specifications:

a) Optical bench
Length: 75 mm
Material: Acrylic
Suitable for focal length experiments for lens and mirrors up to 20 cm focal length

b) Light source
LED illuminated with removable objective
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Mains cord: 2 pin

c) Screen
Powder coated metal screen (white)
Size: 75 mm x 75 mm

d) Lens and mirror set
Lens and mirrors of different focal lengths moulded on acrylic stand
Suitable to be used with the above optical bench

(Customized focal length lens and mirrors are available on request)

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Model: LDV-201/016A
LDV-501/016B

HELIUM-NEON LASER

Experiment(s):

1. All Laser experiments

(For more details, procedure & manual visit: www.kamaljeeth.net)

Consists:

a) He-Ne Laser 2 mW

b) He-Ne Laser 5 mW

Specifications:

Laser
Type: Helium Neon discharge tube Laser
Wavelength: 650 nm
Output power: 2 mW (LDV-201/44A)
Output power: 5 mW (LDV-501/44B)
Mount: Free standing with tilt adjustable ±10° (LDV-201/44A)
Mount: Free standing with height adjustable (LDV-501/44B)

Power supply
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Mains cord: 3 pin
Discharge tube voltage: 5000 V

HYDROGEN SPECTRUM & RYDBERG CONSTANT

Model: HS-0601/017

Experiment(s):

1. Determination of Rydberg constant

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-5, No.3, Page-239

Experiment setup consists:

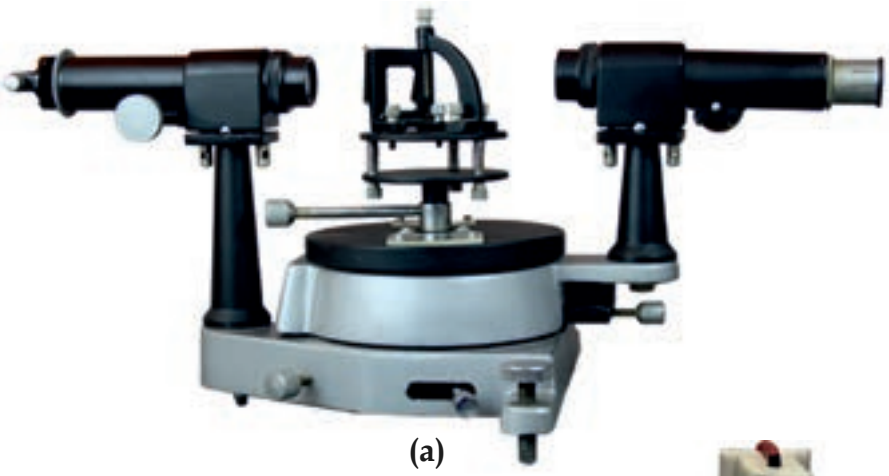
a) Spectrometer
b) Diffraction grating
c) Hydrogen discharge tube and power supply

Specifications:

a) Spectrometer
Scale: 6" diameter (Brass)
Base: Cast iron with levelling screw
All moving parts made of Brass for accuracy
Collimator with adjustable slit
Horizontal axis alignment for collimator: Yes
Horizontal axis alignment for telescope: Yes
Centre table: Height adjustable with provision for prism and grating holder
Telescope with user changeable cross wire and eyepiece

b) Diffraction grating
Grating constant: 15000 Lines/inch
Window size: 40 mm x 30 mm

c) Discharge tube power supply
High voltage power supply variable from 0-5 KV
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Suitable for other discharge tubes
Discharge tube: Hydrogen filled (Qty: 2 Nos)
Stand: Height adjustable to accommodate all Kamaljeeth make discharge tubes



(a)

(b)

(c)

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Model: LDM-2003/018

LASER BEAM CHARACTERISTICS

Experiment(s):

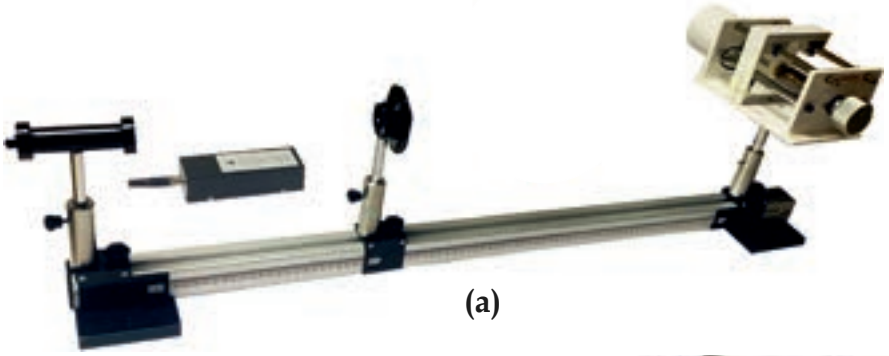
1. Study of Gaussian nature of Laser beam

2. Determination of spot width and divergence angle

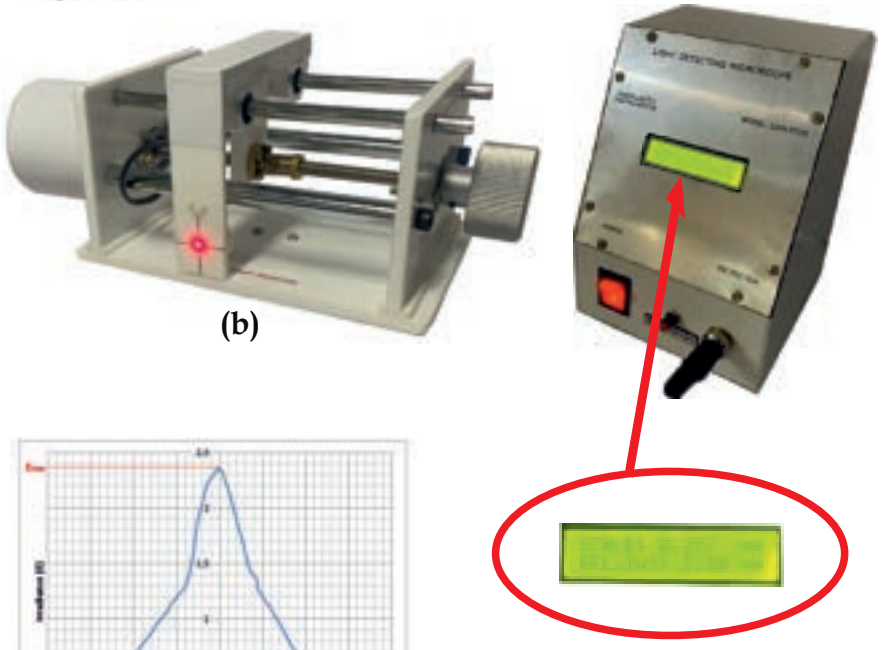
3. Polarisation nature of Laser

(For more details, procedure & manual visit: www.kamaljeeth.net)

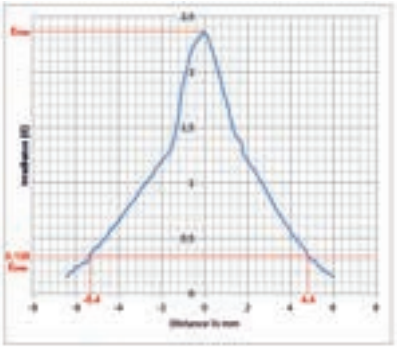
Reference : Lab Experiments Journal vol-5, No.2, Page-105



(a)



(b)



Experiment setup consists:

a) Optical bench & Laser

b) Light detecting microscope

Specifications:

a) Optical bench & Laser
Length: 1 m
Fixture: Three (for Laser source, polarizer and light detector)
Material: Aluminium & cast iron
Laser
Type: Semiconductor diode Laser
Wavelength: 625 nm (Red)
Output power: 3 mW
Mount: Height adjustable
Power supply
Output: Suitable for 3 mW & 5 mW semiconductor Lasers
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Mains cord: 2 pin

b) Light detecting microscope
Bed travel: 100 mm (One Axis)
Resolution: 0.001 mm
Intensity: up to 10 mW
Resolution: 0.01 mW
Sensor: Photo detector
Base: Acrylic
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Mains cord: 3 pin

Polariser
Graduation: 360° scale with LC = 1° mountable on to upright

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LASER DIFFRACTION BY GRATING

Model: LDG-2011/019A
LDG-2013/019B

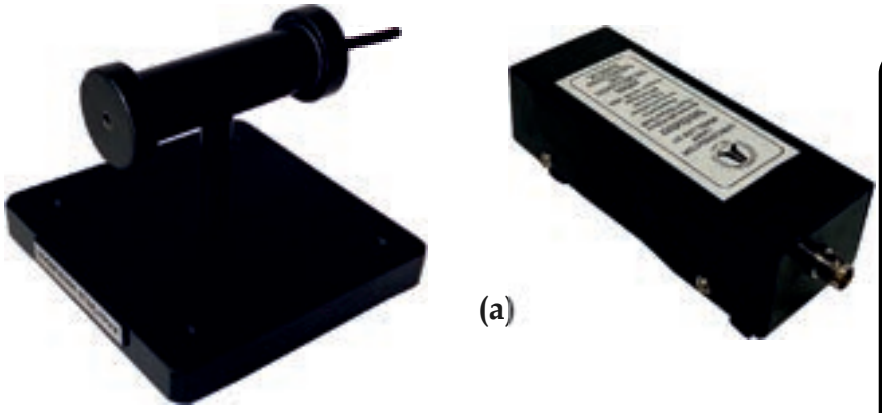
Experiment(s):

1. Determination of wavelength of Laser

2. Determination of grating constant

(For more details, procedure & manual visit: www.kamaljeeth.net)

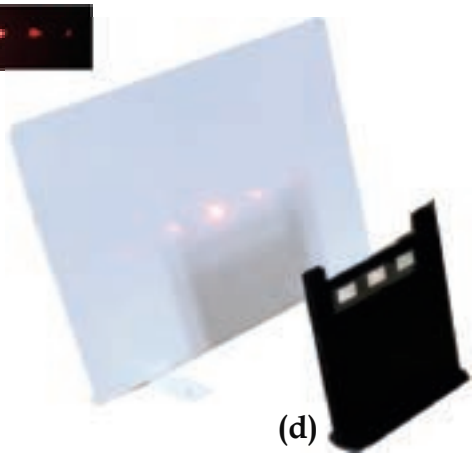
Reference : Lab Experiments Journal vol-6, No.1, Page-22



(a)

(b)

(c)



(d)

Experiment setup consists:

a) Laser & power supply

b) 3 in 1 window grating

c) Single window grating

d) White screen & grating holder

Specifications:

a) Laser
Type: Semiconductor diode Laser
Wavelength: 625 nm (Red)
Output power: 3 mW
Mount: Cast iron base with levelling screw

Power supply
Output: Suitable for 3 mW & 5 mW semiconductor Lasers
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Mains cord: 2 pin

b) 3 in 1 window grating
Three different grating suitable for Laser diffraction
100 Lines/mm, 300 Lines/mm & 600 Lines/mm

c) Single window grating
Single grating suitable for Laser diffraction of 100 Lines/mm

d) Screen & grating holder
Metal white screen and grating holder suitable for any standard grating

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Model: LDV-204/020

LASER DIFFRACTION BY GRADUATION MARK

Experiment(s):

1. Determination of wavelength of Laser

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-7, No.3, Page-233

Experiment setup consists:

a) Laser

b) Power supply

c) Stand & scale

(a)

(b)

(c)

Specifications:

a) Laser
Type: Semiconductor diode Laser
Wavelength: 625 nm (Red)
Output Power: 3 mW
Mount: Cast iron base with levelling screw

b) Power supply
Output: Suitable for 3 mW & 5 mW semiconductor Lasers
Rated Input: 220 V/50 Hz
or 110 V/60 Hz

c) Stand
Adjustable height and tilt adjustable with magnetic base for metal scale

Measuring tape
Length: 3 m

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LASER DIFFRACTION BY ADJUSTABLE SINGLE SLIT

Model: LDA-201/021

Experiment(s):

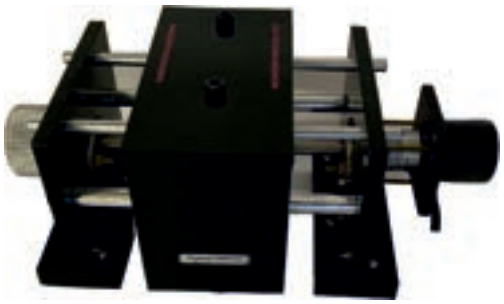
1. Determination of wavelength of Laser

2. Determination of slit width

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-2, No.3, Page-15

(a)



(b)

(c)

Experiment setup consists:

a) Laser & power supply

b) Light detecting microscope

c) Single hole circular slit

Specifications:

a) Laser
Type: Semiconductor diode Laser
Wavelength: 625 nm (Red)
Output Power: 3 mW
Mount: Cast iron base with levelling screw

Power supply
Output: Suitable for 3 mW & 5mW semiconductor Lasers
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Mains cord: 2 pin

b) Light detecting microscope
Bed travel: 100 mm (One Axis)
Resolution: 0.001 mm
Output: Displayed on meter in mm
Sensor: Photo detector
Base: Cast iron

c) Adjustable slit
Mount: Suitable to be fitted on Laser
Slit: Adjustable through micrometer
Maximum width: 10 mm
LC: 0.01 mm

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Model: LDR-201/022

LASER DIFFRACTION BY RECTANGULAR APERTURE

Experiment(s):

1. Determination of wavelength of Laser

2. Determination of width (and breath) of rectangular aperture

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-5, No.1, Page-19

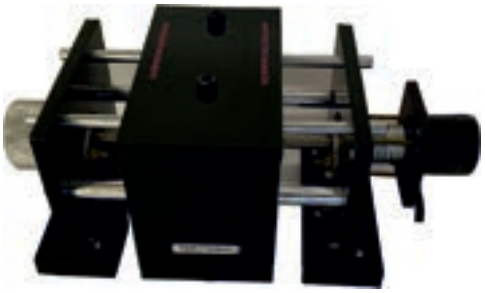
Experiment setup consists:

a) Laser & power supply

b) Light detecting microscope

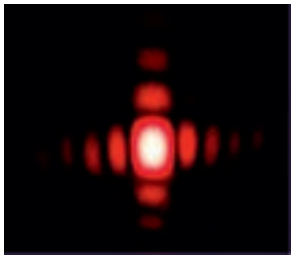
c) Rectangular hole slit

(a)



(b)

(c)



Specifications:

a) Laser
Type: Semiconductor diode Laser
Wavelength: 625 nm (Red)
Output power: 3 mW
Mount: Cast iron base with levelling screw

Power supply
Output: Suitable for 3 mW & 5 mW semiconductor Lasers
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Mains cord: 2 pin

b) Light detecting microscope
Bed travel: 100 mm (one axis)
Resolution: 0.001 mm
Output: Displayed on meter in mm
Sensor: Photo detector
Base: Cast iron

c) Rectangular hole slit
Mount: Suitable to be fitted on Laser
Hole dimension: 1 to 2 mm

MALU's LAW OF POLARIZATION USING LASER

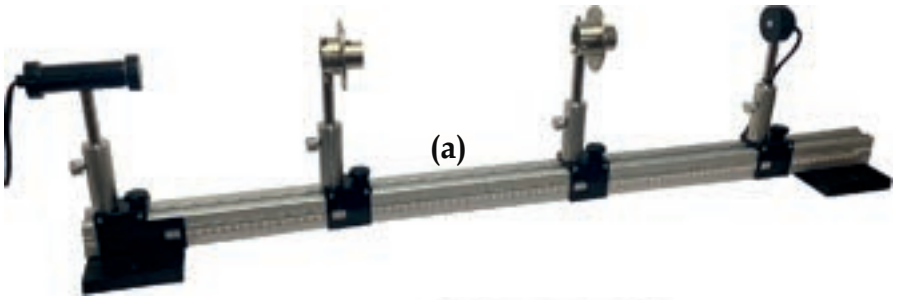
Model: ML-1908R/023A
ML-1908G/023B

Experiment(s):

1. Verification of Malu's law of polarization

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-15, No.3, Page-201



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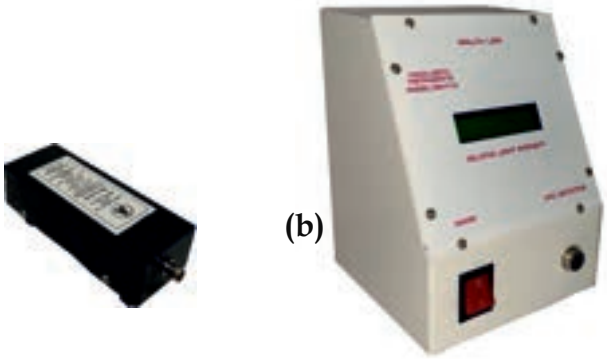
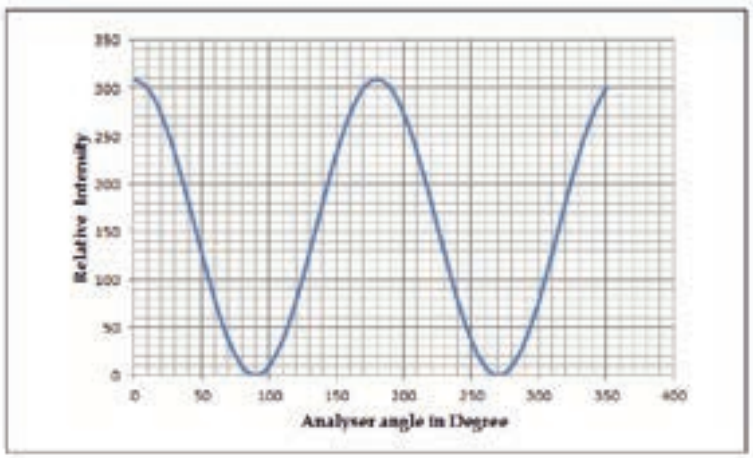


(b)



For fixed position of polarizer, the graph shows variation of intensity with change in analyzer angle

Experiment setup consists:

a) Optical bench

b) Light intensity meter

Specifications:

a) Optical bench: Aluminium alloy rail of length 1 m

Uprights: Free movement sliders on rail - 4 Nos

Laser: 625 nm Red (ML-1908R) or
540 nm Green (ML-1908G)
5 mW semiconductor diode laser

Power supply: Regulated output and output protection DC power supply,
Rated Input: 220 V/50 Hz
or 110 V/60 Hz

Polarizer: Graduated 360° scale with LC 1°, mountable on to upright

Analyzer: Graduated 360° scale with LC 1°, mountable on to upright

Optical detector: Relative intensity measurable for Lasers up to 10 mW.

b) Light intensity meter: Measures relative light intensity with range selection switch,
Rated Input: 220 V/50 Hz
or 110 V/60 Hz

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Model: ML-2020R/024

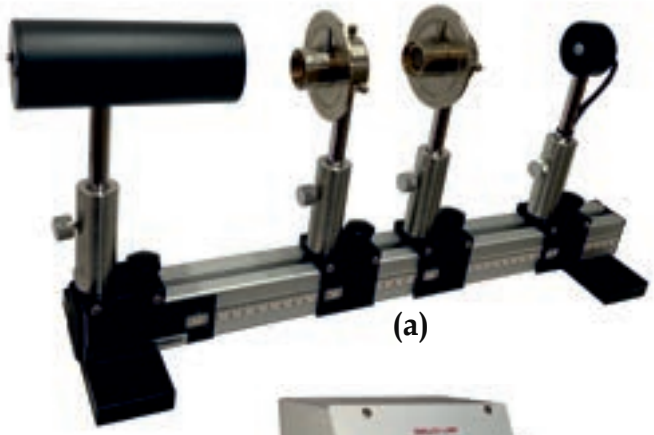
MALU's LAW OF POLARIZATION USING WHITE LIGHT SOURCE

Experiment(s):

1. Verification of Malu's law of polarization

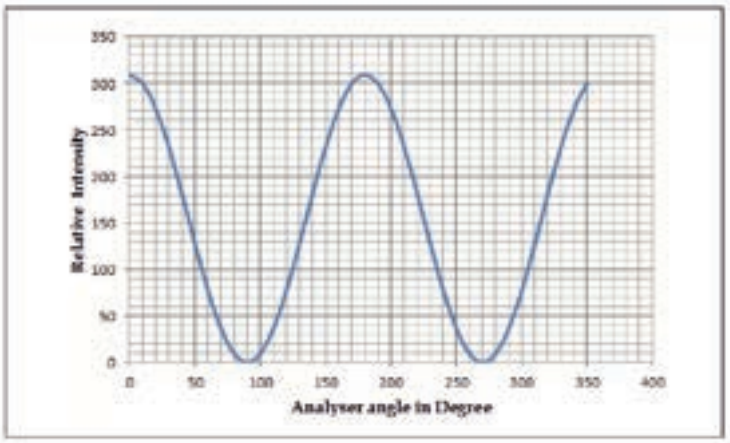
(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-10, No.2, Page-125



(a)

(b)



For fixed position of polarizer, the graph shows variation of intensity with change in analyzer angle

Experiment setup consists:

a) Optical bench

b) Light intensity meter

Specifications:

a) Optical bench: Aluminium alloy rail of length 1/2 m

Uprights: Free movement sliders on rail - 4 Nos

Light Source: White light source with mount
Rated Input: 220 V/50 Hz
or 110 V/60 Hz

Polarizer: Graduated 360° scale with LC 1°, mountable on to upright

Analyzer: Graduated 360° scale with LC 1°, mountable on to upright

Optical detector: Relative intensity measured using photo diode

b) Light intensity meter: Measures relative light intensity with range selection switch
Rated Input: 220 V/50 Hz
or 110 V/60 Hz

MICHELSON INTERFEROMETER

Model: MIC-1218/025

Experiment(s):

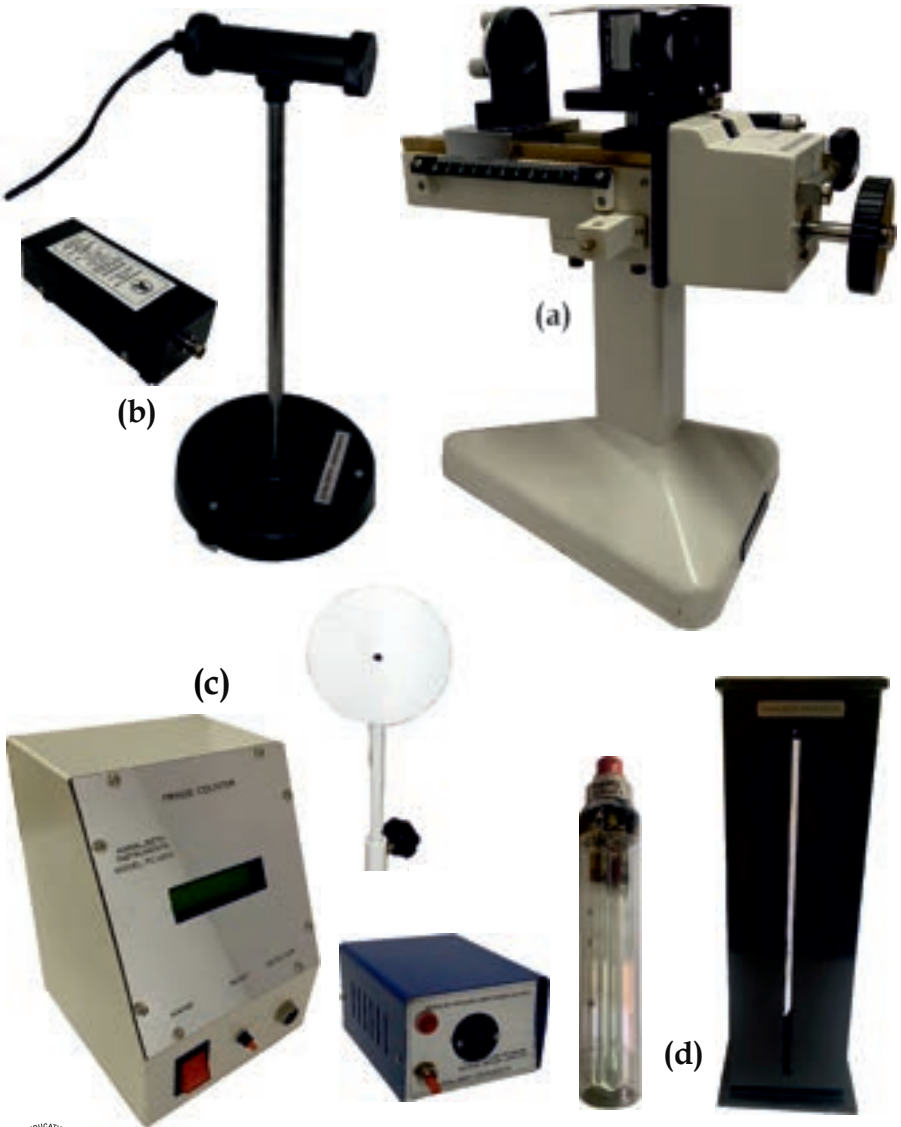
1. Determination of average wavelength of Sodium D_1 and D_2 lines

2. Determination of D_1-D_2 separation & thickness of Mica

3. Determination of average wavelength of semiconductor diode Laser

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-4, No.3, Page-180
Lab Experiments Journal vol-12, No.4, Page-310



Specifications:

a) Interferometer
Adjustable beam splitter twin parallel arrangement
Mirror: 2 Axis adjustment
LC: 0.001 mm
Measurement: 3 scale method
Mirror coating: Silver finished

b) Laser & power supply
Type: Semiconductor diode Laser with beam diffuser
Wavelength: 625 nm (Red)
Output power: 3 mW
Mount: Cast iron base with levelling screw
Power supply:
Output: Suitable for 3 mW & 5 mW semiconductor Lasers
Rated Input: 220 V/50 Hz
or 110 V/60 Hz

c) Digital fringe counter
Calibration for dark and bright spots: Manual
Suitable for rings >10 mm dia
Display: LCD readout
Rated Input: 220 V/50 Hz
or 110 V/60 Hz

d) Sodium vapour lamp set (Optional)
Lamp: Philips / Thorne 35 W
Lamp House: Single lamp type with fixed slit openings
Transformer: 35 W, instant ON
Rated Input: 220 V/50 Hz
or 110 V/60 Hz

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Model: NR-201/026

NEWTON's RINGS

Experiment(s):

1. Determination of wavelength of sodium lamp

2. Determination of focal length of convex lens

3. Determination of refractive index of water/liquids

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-13, No.1, Page-49
Lab Experiments Journal vol-2, No.1, Page-65

Experiment setup consists:

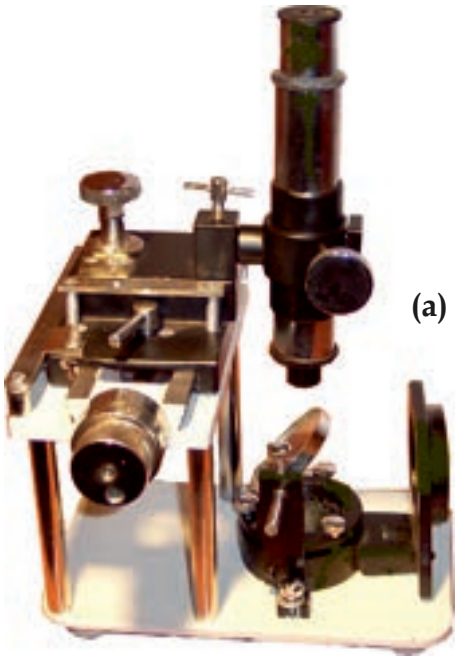
a) Microscope

b) Sodium vapour lamp set

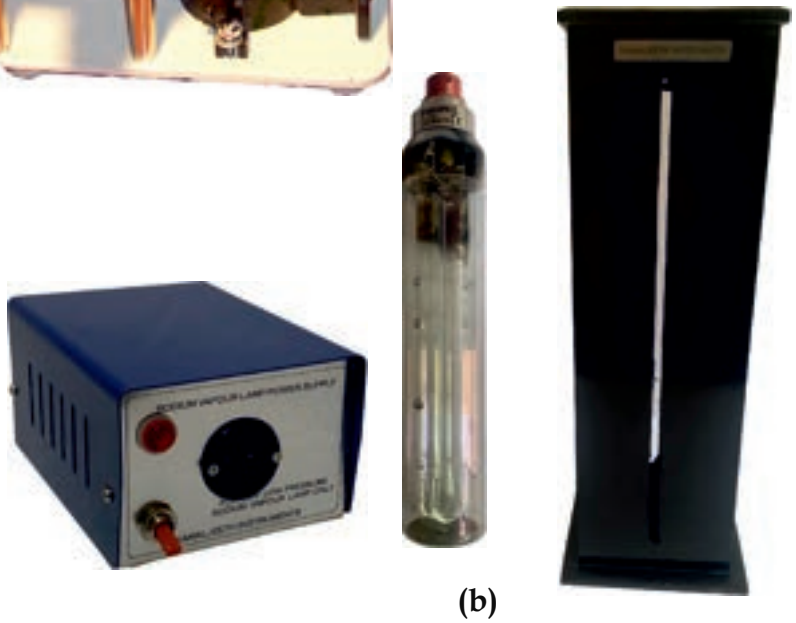
Specifications:

a) Microscope
Newton's rings microscope
Reflector: 45° turning glass plate
Metal assembly with knob screw
Fixed glass plates and lens assembly
Base material: Cast iron
Moving components: Brass
Reading: Screw gauge type reading micrometer
x-movement: 50 mm
Resolution: 0.01 mm

b) Sodium vapour lamp set (Optional)
Lamp: Philips / Thorne 35 W
Lamp house: Single lamp type with fixed slit openings
Transformer: 35 W, Instant ON type
Rated Input: 220 V/50 Hz
or 110 V/60 Hz



(a)



(b)

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NEWTON's RINGS WITH DIGITAL READOUT

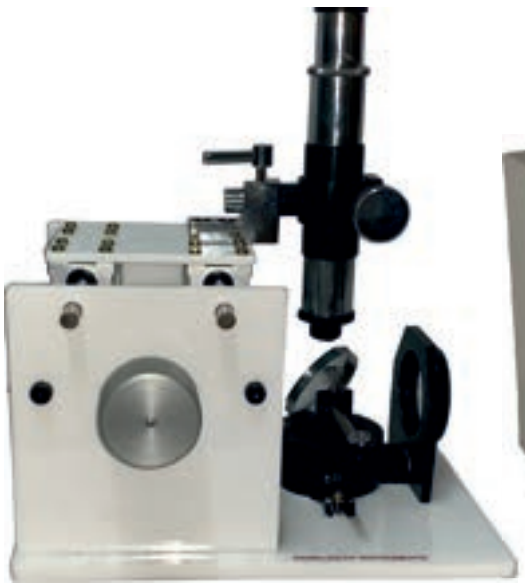
Model: NR-2020/027

Experiment(s):

1. Determination of wavelength of sodium vapour lamp
2. Determination of focal length of convex lens
3. Determination of refractive index of liquid

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-13, No.1, Page-49



(a)

(b)

(c)

Experiment setup consists:

a) Newton's rings microscope

b) Digital readout

c) Sodium vapour lamp set

Specifications:

a) Microscope
Newton's rings microscope
Reflector: 45° turning glass plate
Metal assembly with knob screw
Fixed glass plates and lens assembly
Base material: Acrylic
Moving components: Brass
Reading: Digital output

b) Digital readout
Range: 100 mm
Resolution: 0.01 mm
Display: LCD
Rated Input: 220 V/50 Hz
or 110 V/60 Hz

c) Sodium vapour lamp set (Optional)
Lamp: Philips / Thorne 35 W
Lamp house: Single lamp type with fixed slit openings
Transformer: 35 W, Instant ON type
Rated Input: 220 V/50 Hz
or 110 V/60 Hz

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Website: **www.kamaljeeth.net**, Email: labexperiments@kamaljeeth.net

3 years manufacturing warranty

Model: NA-201/028

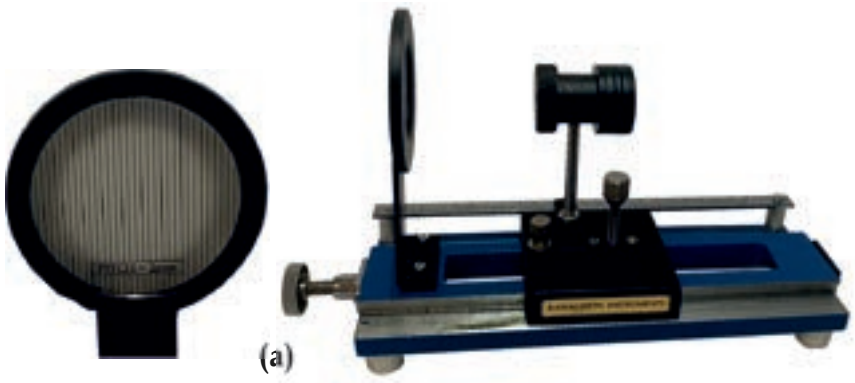
NUMERICAL APERTURE & DIVERGENCE ANGLE

Experiment(s):

1. Determination of numerical aperture and divergence angle of OFC

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-9, No.3, Page-212



(a)

(b)

(c)

Experiment setup consists:

a) X-Y Bed

b) Laser & power supply

c) OFC cable

Specifications:

a) X-Y Bed
Bed length: 220 mm
Screen: 35 mm dia
Graduations on screen: 2 mm
Movement: Course and fine using screw movement

b) Laser
Type: Semiconductor diode Laser
Wavelength: 625 nm (Red)
Output Power: 3 mW
Mount: Cast iron base with levelling screw

Power supply
Output: Suitable for 3 mW & 5 mW semiconductor Lasers
Rated Input: 220 V/50 Hz
or 110 V/60 Hz

c) Optical Fibre Cable (OFC)
Length: 1.5 m or 3 m
Core dia of the cable: 0.5 mm

NUMERICAL APERTURE , DIVERGENCE ANGLE & ATTENUATION

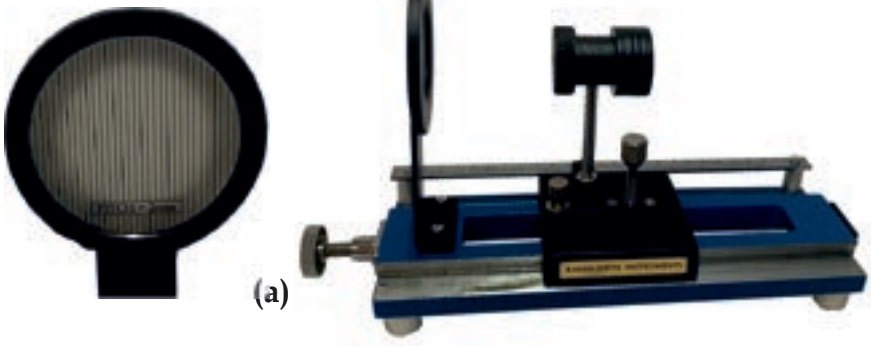
Model: NA-202/029

Experiment(s):

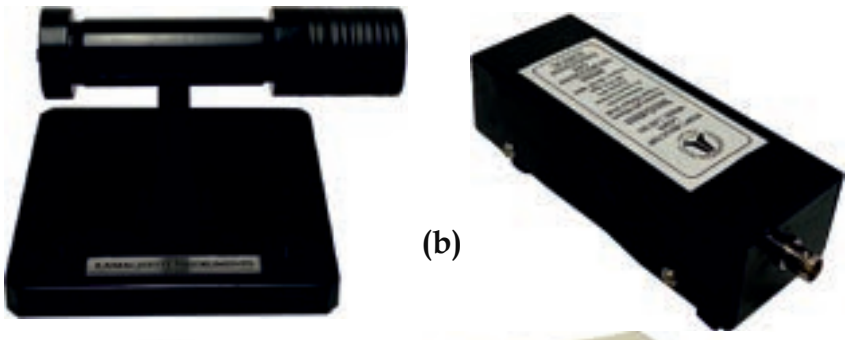
1. Determination of numerical aperture and divergence angle of Optical Fibre Cable (OFC)

2. Determination of attenuation in Optical Fibre Cable

Reference : Lab Experiments Journal vol-6, No.4, Page-309
Lab Experiments Journal vol-10, No.1, Page-60

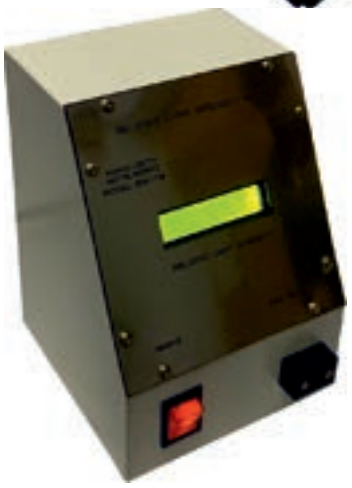


(a)



(b)

(c)



(d)

Experiment setup consists:

a) X-Y Bed
b) Laser & power supply
c) OFC cable 1.5 m & 3 m
d) Relative light intensity meter

Specifications:

a) X-Y Bed
Bed Length: 220 mm
Screen: 35 mm dia
Graduations on screen: 2 mm
Movement: Course and fine using screw movement

b) Laser
Type: Semiconductor diode Laser
Wavelength: 625 nm (Red)
Output power: 3 mW
Mount: Cast iron base with levelling screw

Power Supply
Output: Suitable for 3 mW & 5 mW semiconductor Lasers
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Mains cord: 2 pin

c) Optical Fibre Cable (OFC)
Length: 1.5 m or 3 m
Core dia of the cable: 0.5 mm

d) Relative light intensity metre
Optical detector: Input from OFC
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Mains cord: 3 pin

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Model: NA-203/030

NUMERICAL APERTURE , DIVERGENCE ANGLE, ATTENUATION AND BANDWIDTH

Experiment(s):

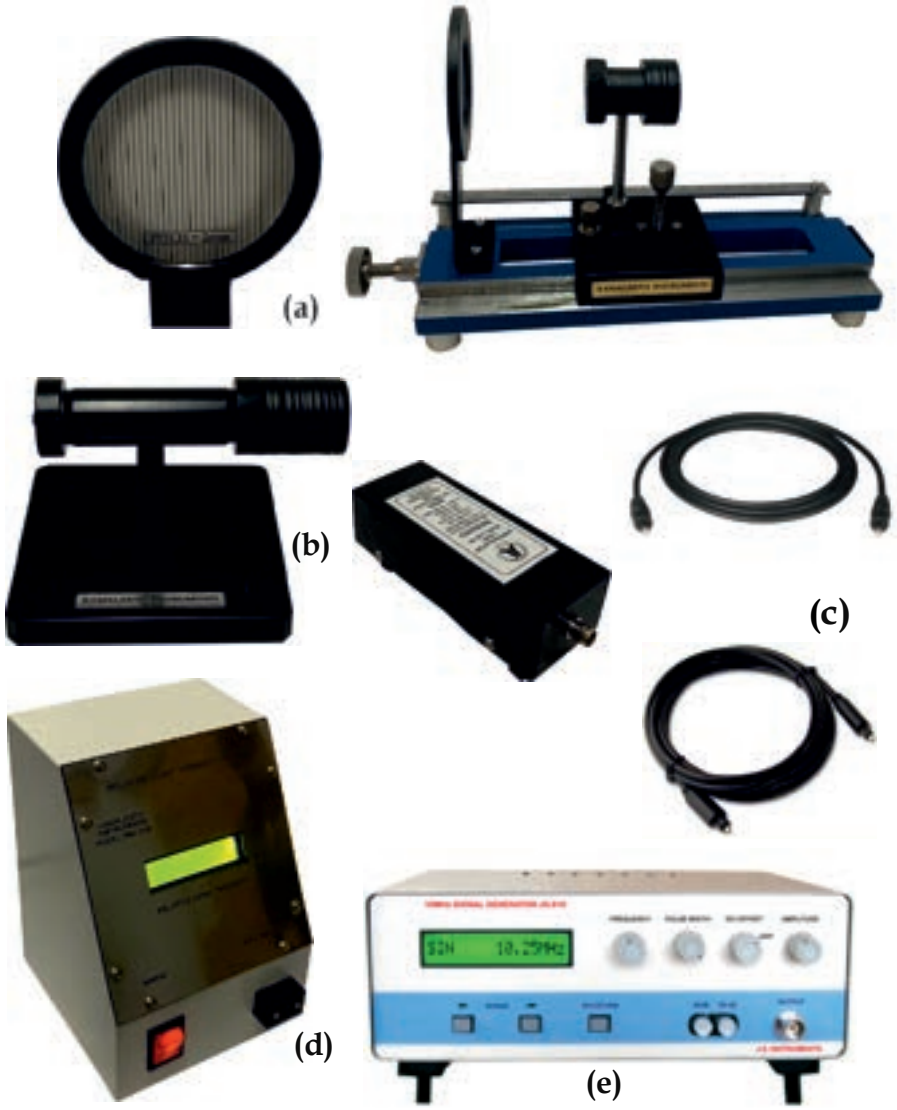
1. Determination of numerical aperture and divergence angle of Optical Fibre Cable (OFC)

2. Determination of attenuation in optical fibre cable

3. Determination of bandwidth of optical fibre cable

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-6, No.4, Page-309
Lab Experiments Journal vol-10, No.1, Page-60



Specifications:

a) X-Y Bed
Bed length: 220 mm
Screen: 35 mm dia
Graduations on screen: 2 mm
Movement: Course and fine using screw movement

b) Laser
Type: Semiconductor diode Laser
Wavelength: 625 nm (Red)
Output Power: 3 mW
Mount: Cast iron base with levelling screw

Power supply
Output: Suitable for 3 mW & 5mW semiconductor Lasers
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Mains cord: 2 pin

c) Optical Fibre Cable (OFC):
Length: 1.5m or 3m
Core dia of the cable: 0.5mm

d) Relative light intensity metre
Optical detector: Input from OFC
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Mains cord: 3 pin

e) Signal generator
Max frequency: 10 MHz
Max amplitude: Suitable for Laser

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Experiment(s):

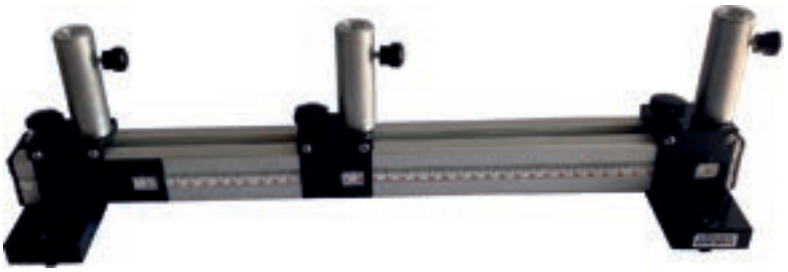
1. I-V Characteristics of - Photo diode, LED, Photo transistor, LDR

2. Solar cell characteristics

3. Opto-coupler characteristic

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-2, No.3, Page-8



Specifications:

Optical bench
Bench length: 500 mm
Scale: Yes with LC 0.1 cm
Sliders & holders: 3
Material: Cast iron heavy base with leveling screw, hardened aluminium rail

Photo sensitive semi conductors
Photo transistor, LDR, Photo diode, opto-coupler and solar cell

White light source: LED lamp
Output: 2 W
Rated Input: 220 V/50 Hz
or 110 V/60 Hz

Semiconductor diode Laser
Wavelength: 625 nm (Red)
Output power: 3 mW
Mount: Height adjustable
Power supply output: Suitable for 3 mW & 5 mW semi conductor Lasers

Opto-electronics characteristics kit
DC variable regulated power supply with coarse and fine knobs 0-12 V
Continuos variable load resistor
Internally connected digital volt and current meters
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Mains cord: 3 pin

Model: SR-201/032

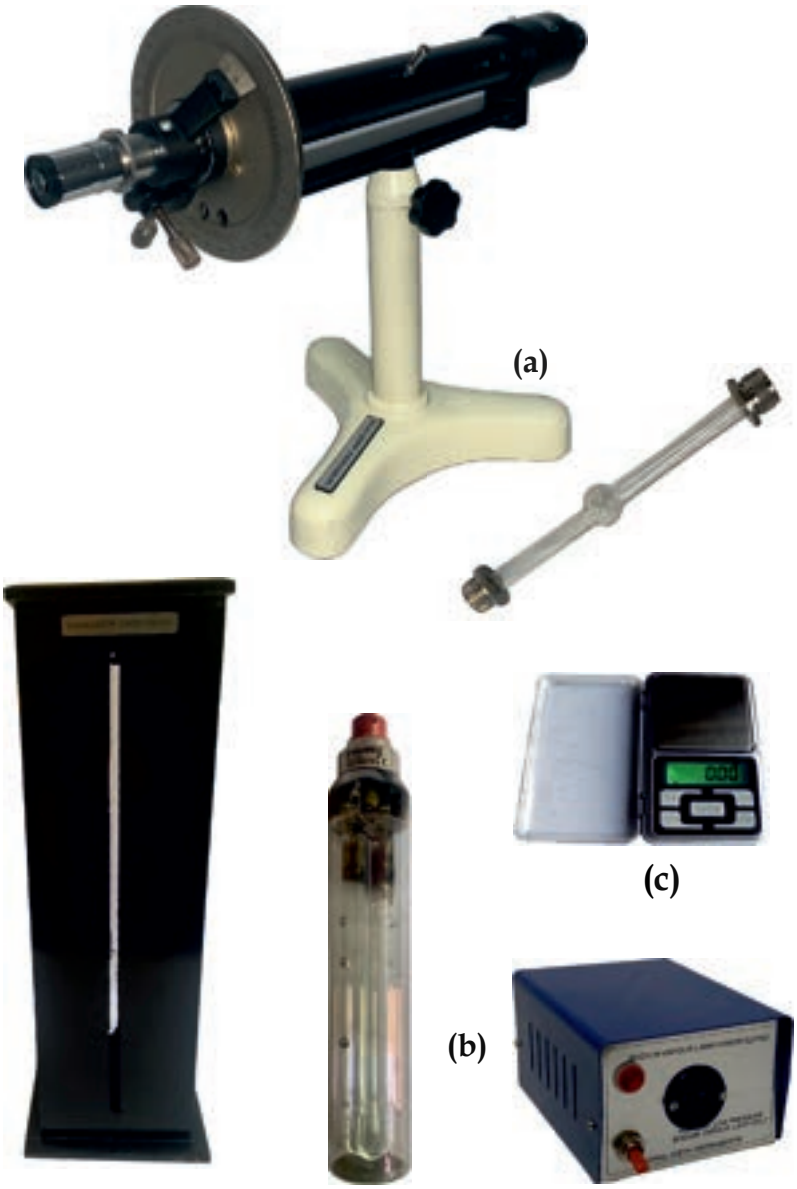
POLARIMETER

Experiment(s):

1. Determination of specific rotation of sugar solution

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-15, No.4, Page-253



Experiment setup consists:

a) Polarimeter & Glass tube

b) Sodium vapour lamp set

c) Digital balance (Optional)

Specifications:

a) Polarimeter & Glass tube
Type: Half shade
Base material: Cast iron
Moving components: Brass
Scale: Vernier type graduated to 360°
LC: 0.1°
Rotation: Coarse and fine
Focus: Adjustable at eye piece
Tube slot: Can accommodate tubes up to 220 mm

b) Sodium vapour lamp set (Optional)
Lamp: Philips / Thorne 35 W
Lamp house: Single lamp type with fixed slit openings
Transformer: 35 W, Instant ON type
Rated Input: 220 V/50 Hz
or 110 V/60 Hz

c) Digital balance (Optional)
Range: 200 g
Resolution: 0.01 g
Type: Pocket scale
Power: Battery operated

RESOLVING POWER OF GRATING

Model: RPG-201/033

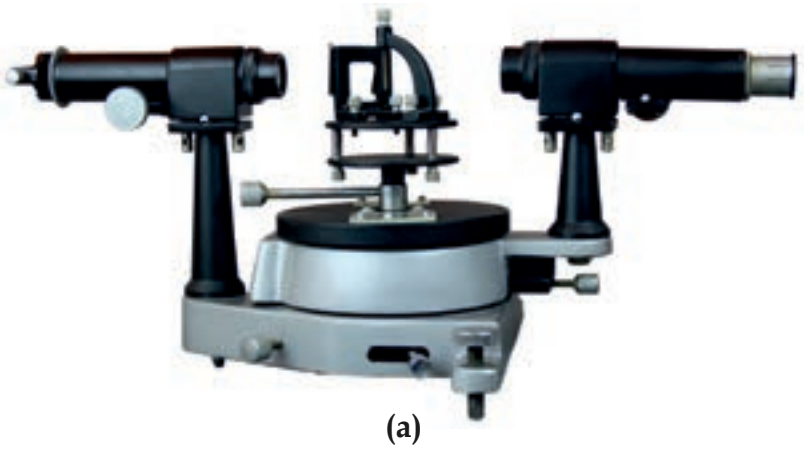
Experiment(s):

1. Determination of grating constant and resolving power of grating

2. Measurement of wavelengths of mercury spectrum

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-11, No.1, Page-45
Lab Experiments Journal vol-15, No.4, Page-278



(a)

(b)

(c)

Experiment setup consists:

a) Spectrometer

b) Diffraction grating

c) Mercury vapour lamp set

Specifications:

a) Spectrometer
Scale: 6" diameter (Brass)
Base: Cast iron with levelling screw
All moving parts made of Brass for accuracy
Collimator with adjustable slit
Horizontal axis alignment for collimator: Yes
Horizontal axis alignment for telescope: Yes
Centre table: Height adjustable with provision for prism and grating holder
Telescope with user changeable cross wire and eyepiece

b) Diffraction grating
Grating constant: 15000 Lines/inch
Window size: 40 mm x 30 mm

c) Mercury vapour lamp
Bulb: Philips/Osram
Power: 160 W
Transformer free operation
Enclosure: Wooden with slits
Rated Input: 220 V/50 Hz
or 110 V/60 Hz

Model: RP-201/034

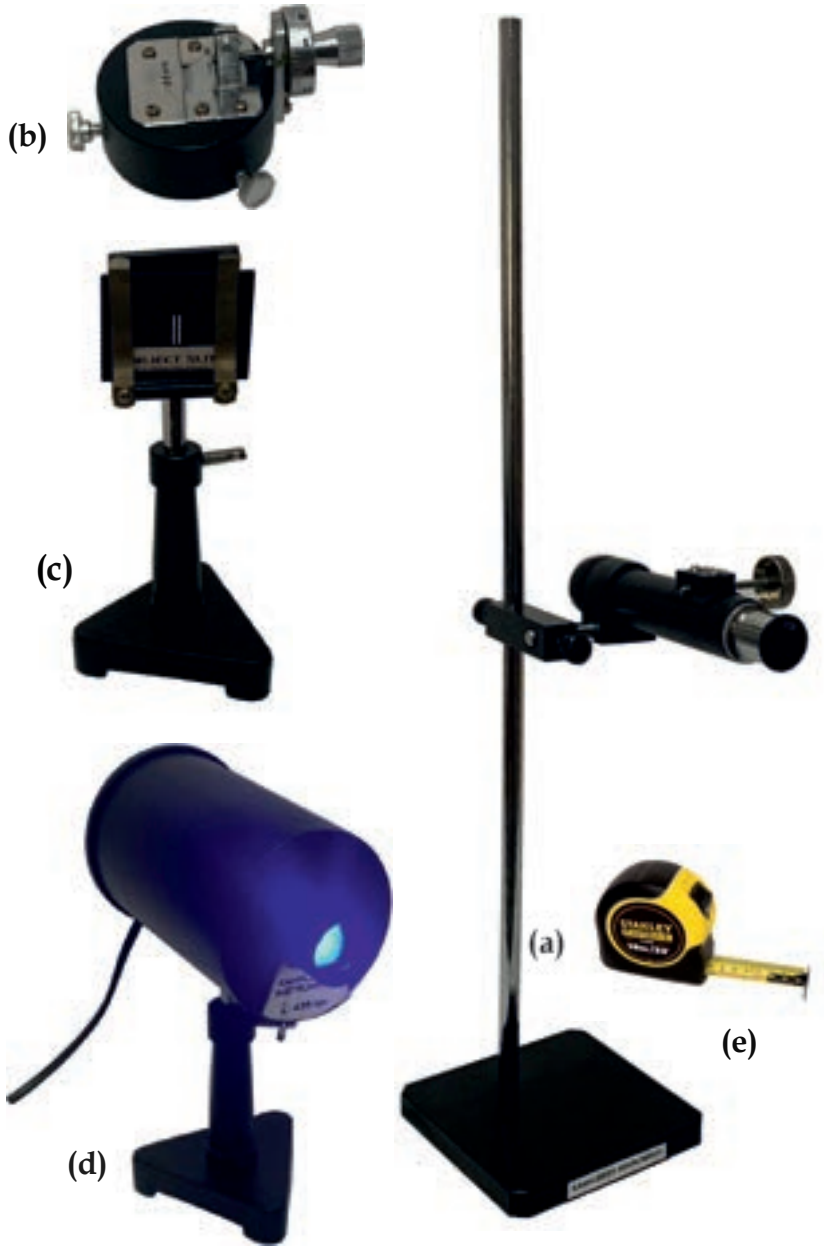
RESOLVING POWER OF TELESCOPE

Experiment(s):

1. Determination of resolving power of a telescope

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-9, No.2, Page-96



Experiment setup consists:

a) Telescope on stand
b) Adjustable single slit
c) Double slit
d) Light source of known wavelength
e) Measuring tape

Specifications:

a) Telescope on stand
Base: Heavy cast iron
Telescope height: Adjustable
Focus: Adjustable
Tilt: Adjustable

b) Adjustable single slit
Mount: Suitable to be fitted on telescope
Slit: Adjustable through micrometer
Maximum width: 10 mm
LC: 0.01 mm

c) Double slit
Type: Fixed slit
Slit Width: 1 mm
Pitch: 2 mm

d) Light Source of known wavelength
Stand: Height adjustable
Wavelength: 435 nm, fixed intensity
Rated Input: 220 V/50 Hz
or 110 V/60 Hz

e) Measuring tape
Length: 3 m

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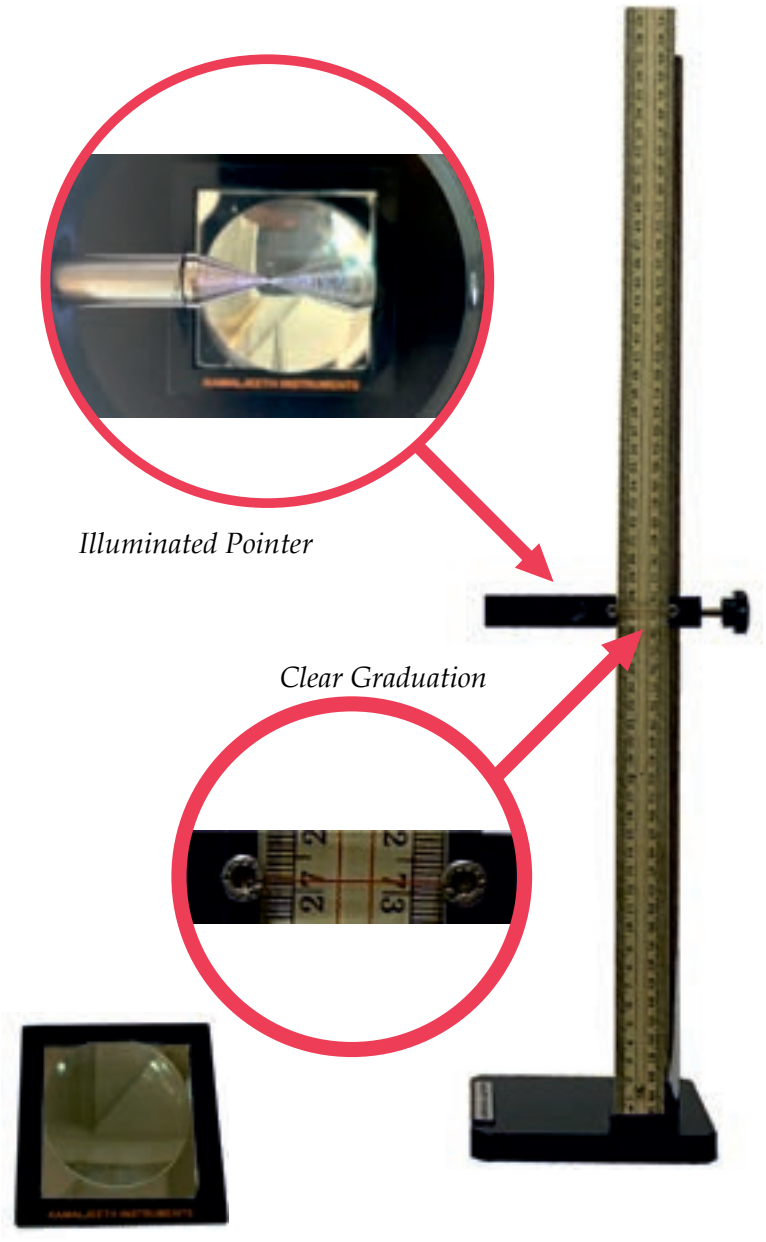
Experiment(s):

1. Determination of refractive index of liquid

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-13, No.3, Page-183



Experiment setup consists:

a) Stand

b) Illuminated pointer

c) Plain mirror, Convex lens and Magnetic holder

Specifications:

a) Stand
Heavy Cast iron base with vertical rod
Length: 600 mm
Scale: Graduated in mm with clear line markings

b) Illuminated pointer
LED illuminated from opposite end
Height: Adjustable
Scale: Wooden
Rated Input: 220 V/50 Hz
or 110 V/60 Hz

c) Accessories included
Convex lens
Plain mirror
Magnetic holder for holding lens and mirror

Model: RILS-207/036

REFRACTIVE INDEX OF LIQUIDS & SOLIDS USING LASER

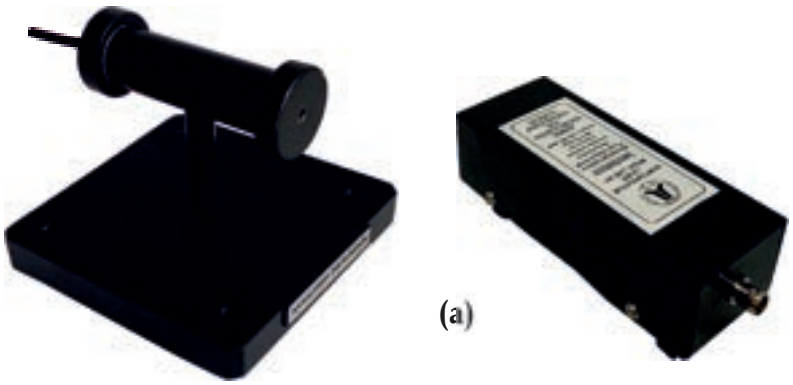
Experiment(s):

1. Determination of refractive index of liquids using Laser

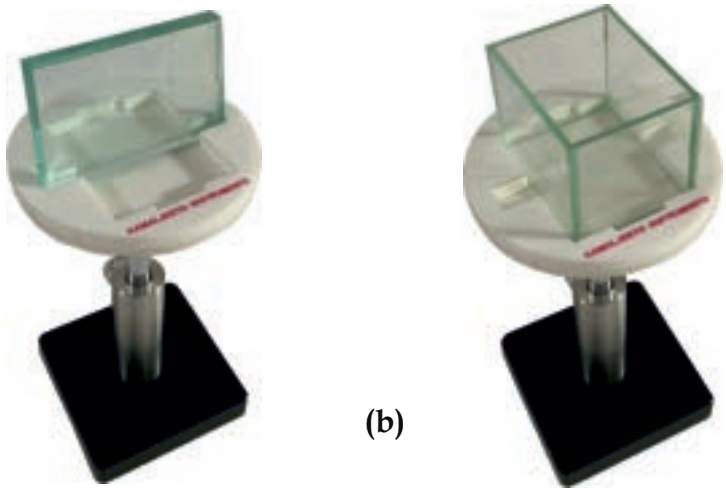
2. Determination of refractive index of solids using Laser

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-8, No.3, Page-208

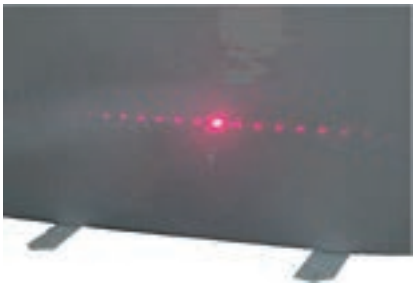


(a)



(b)

(c)



Experiment setup consists:

a) Laser & power supply

b) Glass slab and tank assembly

c) Screen and measuring tape

Specifications:

a) Laser:
Type: Semiconductor diode Laser
Wavelength: 625 nm (Red)
Output power: 3 mW
Mount: Cast iron base with levelling screw

Power supply:
Output: Suitable for 3 mW & 5 mW semiconductor Lasers
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Mains cord: 2 pin

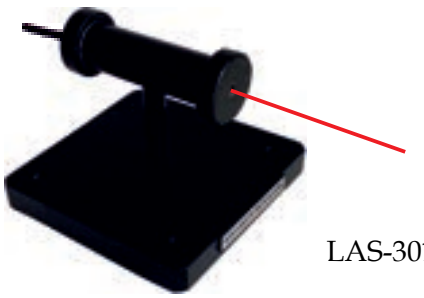
b) Glass slab and tank assembly
Height: Adjustable
Can accommodate slabs of different thickness

c) Screen and measuring tape
White metal screen
Measuring tape: 3 m

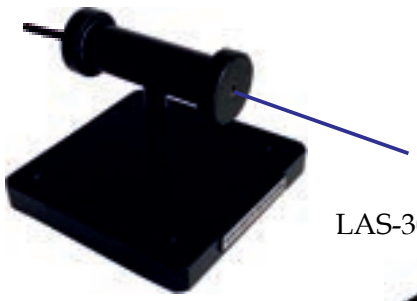
Experiment(s):

1. All Laser experiments

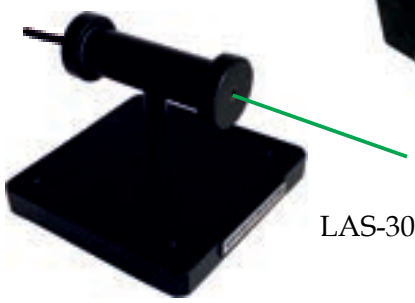
(For more details, procedure & manual visit: www.kamaljeeth.net)



LAS-301/037R

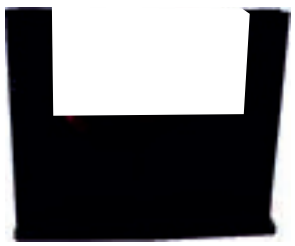


LAS-301/037B

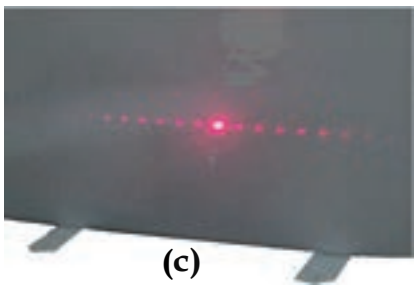


LAS-301/037G

Power Supply



(b)



(c)

Experiment setup consists:

a) Laser & power supply

Accessories (optional)
b) Grating stand
c) White screen

Specifications:

Laser
Type: Semiconductor diode Laser
Wavelength: 625 nm (Red) for LAS-301R/037
Wavelength: 535 nm (Green) for LAS-301B/037
Wavelength: 440 nm (Voilet-Blue) for LAS-301G/037

Output power: 3 mW LAS-301R/037
Output power: 5 mW LAS-301B/037
Output power: 5 mW LAS-301G/037
Mount: Cast iron base with levelling screw
Also mountable on standard breadboard with 100 mm pitch

Power supply
Output: Suitable for 3 mW & 5 mW semiconductor Lasers
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Mains cord: 2 pin

Model: CLED-201/038

SEMICONDUCTOR ENERGY GAP BY OPTICAL METHOD

Experiment(s):

1. Determination of average wavelengths of LEDs

2. Determination of energy gap of semiconductor by optical method

3. Determinatiopn of coherence length of LED

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-2, No.2, Page-10
Lab Experiments Journal vol-10, No.3, Page-215

Experiment setup consists:

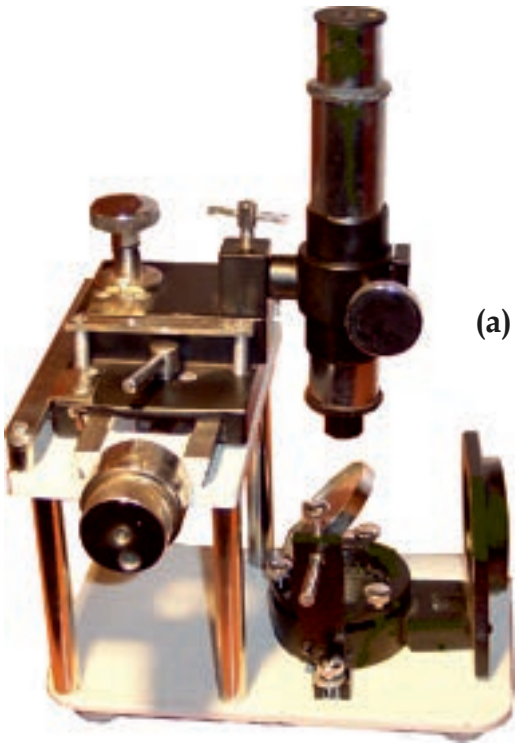
a) Newton's rings microscope

b) LED light source

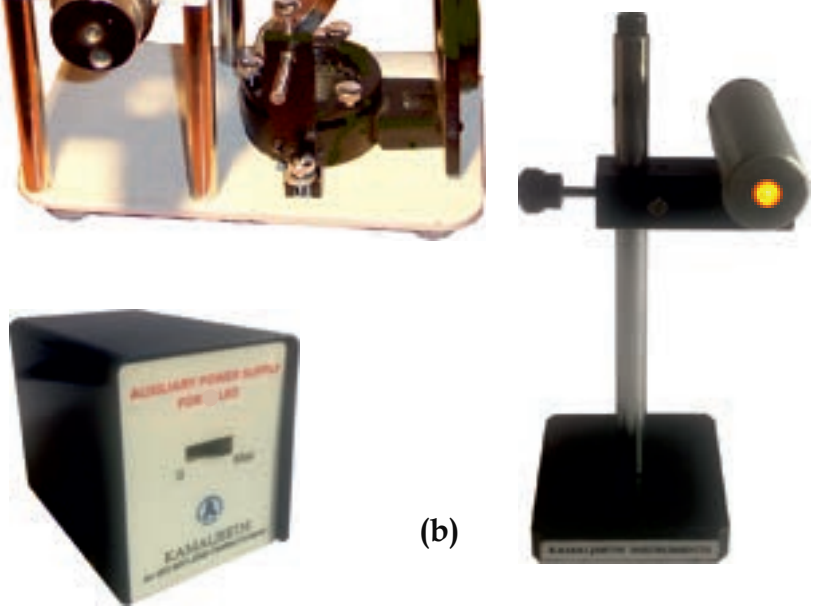
Specifications:

a) Microscope:
Newton's rings microscope
Reflector: 45° turning glass plate
Metal assembly with knob screw
Fixed glass plates and lens assembly
Base material: Cast iron
Moving components: Brass
Reading: Screw gauge type reading micrometer

b) LED light source
Lamp: 2 W LED
Wavelength: 590 nm
Height: Adjustable up to 150 mm
Power supply: Fixed voltage LED driver
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Mains cord: 2 pin



(a)



(b)

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Experiment(s):

1. Determination speed of light

(For more details, procedure & manual visit: www.kamaljeeth.net)

(a)

(b)

(c)

(d)

(e)

Experiment setup consists:

a) Laser light source with fixed oscillator
b) Detector and stand
c) Mirror and stand
d) Digital storage oscilloscope
e) Measuring tape

Specifications:

a) Semi-conductor diode Laser
Wavelength: 625 nm (Red)
Power: External power supply, mains operated (Included)
Output power: 2 mW
Oscillator: Built-in with fixed frequency and amplitude

b) Detector
Type: Photo diode based
Output: To DSO
Power: External power supply, mains operated
Stand height: Up to 400 mm

c) Mirror and stand
Mirror size 45 mm x 45 mm
Stand: Tripod, height and tilt adjustable

d) Digital Storage Oscilloscope
Make: GW Instek
Model: 1102-U
Bandwidth: 100 MHz
Channels: 2
Sampling rate: 250 Million samples/sec
Display: 5.7" TFT colour
USB PC interface: Yes
Warranty: 5 years

e) Measuring tape
Length: 10 m

Model: ULT-501/040

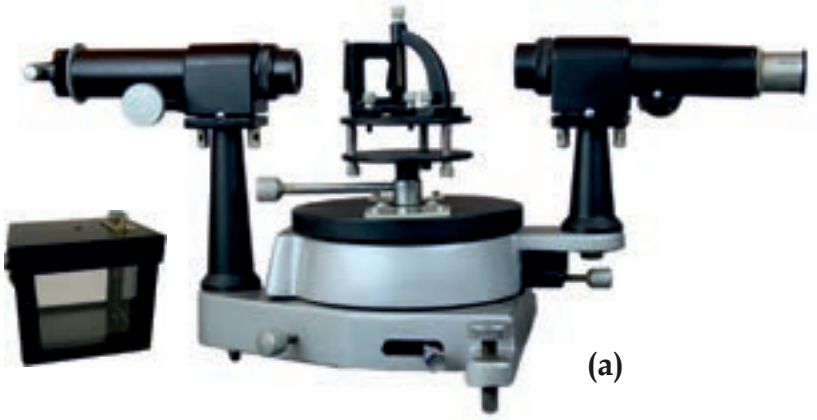
ULTRASONIC INTERFEROMETER

Experiment(s):

1. Determination of velocity of sound in liquids

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-6, No.4, Page-309



(a)

(b)

(c)

Experiment setup consists:

a) Spectrometer

b) Radio Frequency (RF) oscillator

c) Sodium vapour lamp set

Specifications:

a) Spectrometer
Scale: 6" diameter (Brass)
Base: Cast iron with levelling screw
All moving parts made of brass for accuracy
Collimator with adjustable slit
Horizontal axis alignment for collimator: Yes
Horizontal axis alignment for telescope: Yes
Centre table: Height adjustable with provision for prism and grating holder
Telescope with user changeable cross wire and eyepiece

b) R.F Oscillator
Frequency range: 3-10 MHz
Selection: Manual using fine and coarse knobs
Amplitude: Fixed

c) Sodium vapour lamp set (Optional)
Lamp: Philips / Thorne 35 W
Lamp house: Single lamp type with fixed slit openings
Transformer: 35 W, Instant ON type
Rated Input: 220 V/50 Hz
or 110 V/60 Hz

Experiment(s):

1. Determination of Avogadro number using electrolysis technique

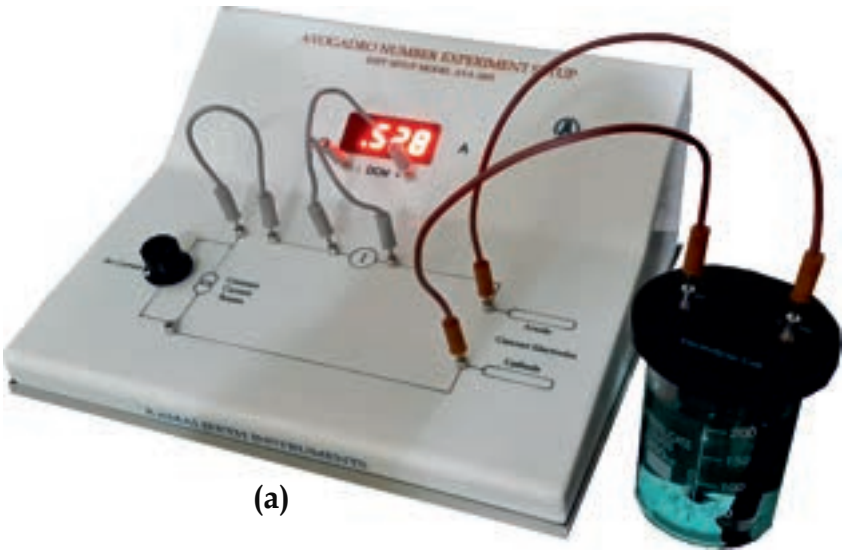
(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-16, No.1, Page-1

Experiment setup consists:

a) Avogadro's number experiment kit

b) Digital balance



(a)

(b)

Specifications:

a) Avogadro's number experiment kit
Power supply:
0 - 1 A Constant current power supply
Current meter: 0-2A, 3½ digit, LED display
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: <50 W
Cabinet: Acrylic body, aluminium bottom
Connectors: 2 mm - 2 mm moulded brass pin patch cords

Electrolysis Cell:
consists a metal rod and metal plate at anode and cathode
Electrolyte: HCl (Not included)

b) Digital balance:
Pocket type
Power: Battery operated
Max weight: 200 g
Resolution: 0.01 g

Model: BH-501/102

B-H CURVE

Experiment(s):

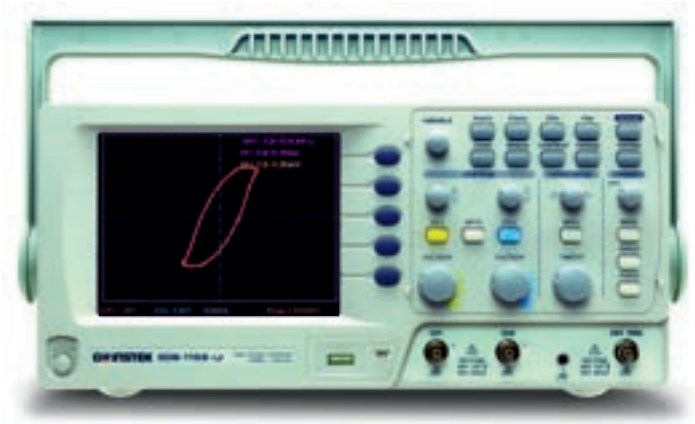
1. Magnetic hysteresis

2. B-H curve loop tracer

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-6, No.4, Page-296

(a)



(b)

Experiment setup consists:

a) Magnetic hysteresis kit

b) Digital storage oscilloscope

Specifications:

a) Magnetic hysteresis kit
Coil: Ferrite core copper coils with 1:1 primary & secondary windings
Power supply: Built in AC source with voltage selection from 2 V to 12 V AC
Heating: Oven heating up to 200 °C
Temperature indicator: Digital thermometer battery operated
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: < 50 W
Cabinet: Acrylic body, aluminium bottom

b) Digital Storage Oscilloscope (DSO)
Make: GW Instek
Model: 1102-U
Bandwidth: 100 MHz
Channels: 2
Sampling rate: 250 million samples/sec
Display: 5.7" TFT colour
USB PC interface: Yes
Warranty: 5 years

Experiment(s):

1. Determination of Boltzmann constant

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-13, No.2, Page-112

(a)

(b)

(c)

(d)

Experiment setup consists:

a) Bulb on stand
b) Battery eliminator
c) Digital current meter
d) Connecting wires

Specifications:

a) Bulb on stand
Standard 12 V Tungsten filament bulb
Connector: 2 mm terminals

b)Power supply battery eliminator
Output: Selectable voltage 0, 1.2, 2, 4, 6, 8, 10 and 12 V
Maximum current: 2 A
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: < 50W
Cabinet: Acrylic body, aluminium bottom

c) Digital current meter
Range: 0-2 A
Resolution: 0.001 A
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: < 20 W
Cabinet: Acrylic body, aluminium bottom

d) Connecting wires
Standard 2 mm and 4 mm Connecting patch cords as required

Model: DMS-201/104A
DMS-202/104B

DIAMAGNETIC & PARAMAGNETIC SUSCEPTIBILITY

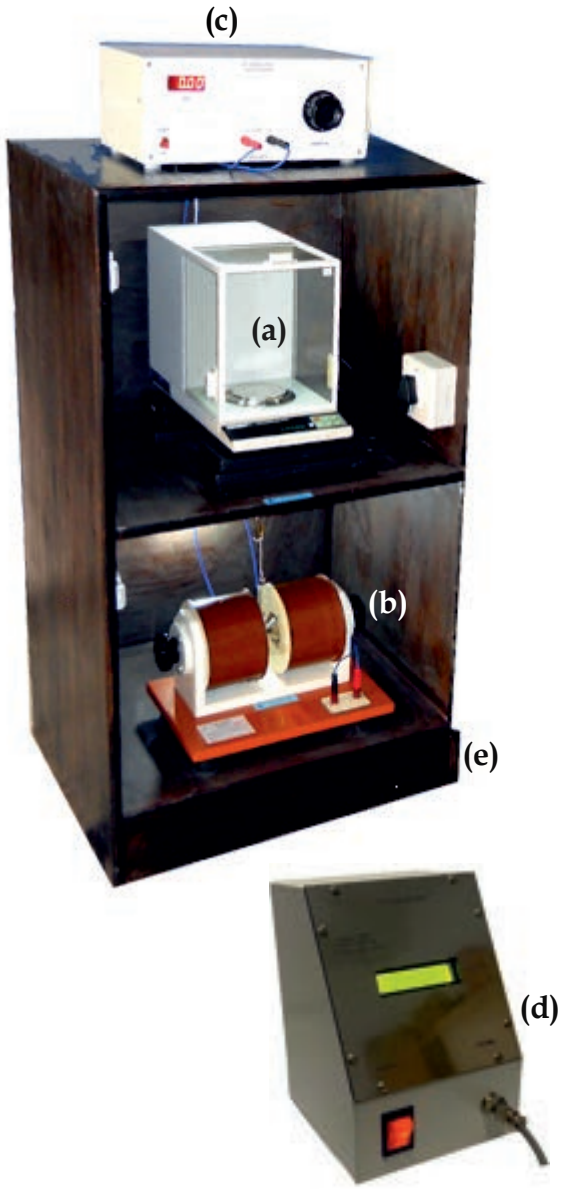
Experiment(s):

1. Determination of magnetic susceptibility of water and glass

2. Determination of magnetic susceptibility of diamagnetic and paramagnetic compounds

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-13, No.2, Page-120



Specifications:

a) Gouy balance
Range: 200 g
Resolution: 0.0001 g
Rated Input: 220 V/50 Hz
Enclosure: sealed from all sides
Pan movement: ± Z axis

b) Magnet
DMS-201:- 100 mm diadiameter magnet with user adjustable pole gap from 1 mm till 20 mm , capable of producing magnetic flux of upto 20K Gauss at 10 mm pole gap
DMS-201LC:- 50 mm diameter magnet with non adjustable pole gap fixed at 10 mm , capable of producing magnetic flux of upto 10K Gauss at 10 mm pole gap

c) Power supply
DMS-201:- Heavy duty power supply with variable constant current, provided with digital current meter, max 400 W
DMS-201LC:- Variable constant current power supply, provided with digital current meter, max 60 W
Rated Input: 220 V/50 Hz
or 110 V/60 Hz

d) Gauss meter
Range: 0-20K Gauss
Resolution: 0.1K Gauss
Display: LCD

e) Cabinet
Size: 500 x 425 x 1100 mm
Material: PlyWood and acrylic

DIODE & ZENER-DIODE CHARACTERISTICS

Model: DZD-1908/105

Experiment(s):

1. Determination of knee voltage, zener voltage and forward resistance

2. Determination of knee voltage, plotting I-V characteristics in forward and reverse bias for a any semi-conductor diode

(For more details, procedure & manual visit: www.kamaljeeth.net)

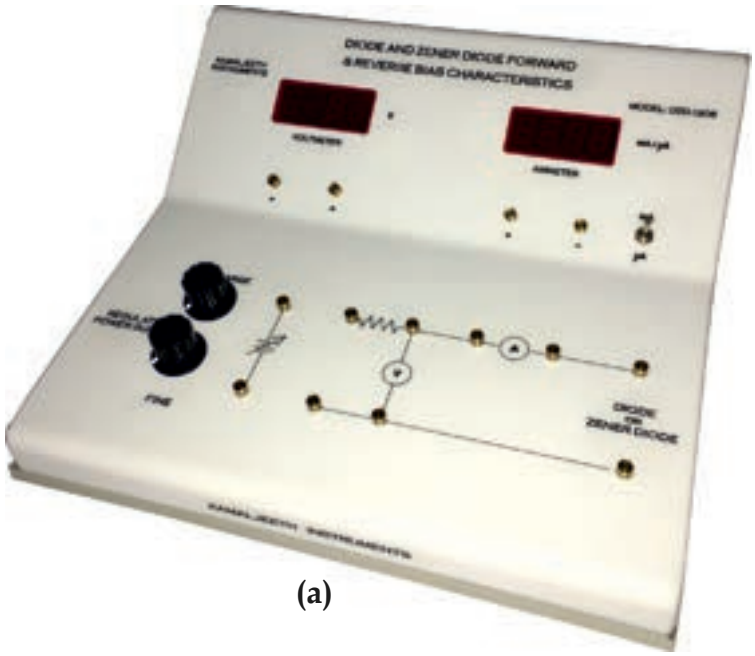
Reference : Lab Experiments Journal vol-1, No.1, Page-20

Experiment setup consists:

a) Diode & zener diode characteristics kit

b) Semiconductor devices

c) Patch cords



(a)

(b)

(c)

Specifications:

a) Diode & zener diode characteristics kit
Power supply: 0-20 V DC variable & regulated
Volt meter: Digital DC 3½ digit
Range: 20 V
Resolution: 0.01 V
Current meter: Digital DC 3½ digit
Range selector: Single step
Range: 200 mA or 200 µA
Resolution: 0.1 mA or 0.1 µA
Device mounting: External
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power Consumption: < 50 W
Cabinet: Acrylic body, aluminium bottom

b) Semi-conductor devices:
Diode -2,
Zener Diode - 2

c) Patch cords:
Set of standard 2mm patch cords of different lengths with spare cords

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Model: EK-1308/106

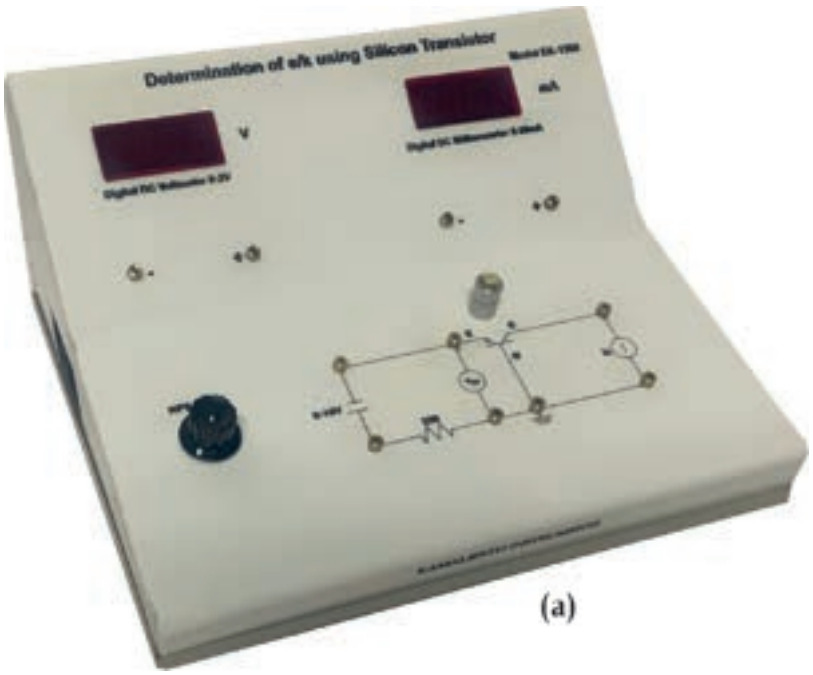
e/k USING SILICON TRANSISTOR

Experiment(s):

1. Determination of e/k using silicon transistor

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-13, No.4, Page-250



(a)

(b)

(c)

Experiment setup consists:

a) e/k using silicon kit

b) Patch cords

c) Silicon transistors

Specifications:

a) e/k using silicon kit
Voltmeter : 3½ digit, LED display
Range: 0-2 V
Resolution: 0.001 V
Current meter: 3½ digit, LED display
Range: 0-20 mA
Resolution: 0.01 mA
Source: Built-in 0-10V DC regulated power supply
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: <40 W
Cabinet: Acrylic body, aluminium bottom

b) Patch cords
Set of standard 2mm patch cords of different lengths with spare cords

c) Silicon transistor
Type: n-p-n
Part number: SL-100
Quantity: 2 nos

e/m BY MILLIKAN's OIL DROP METHOD

Model: TEM-1101/107

Experiment(s):

1. Determination of e/m of an electron by Millikan's oil drop method

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-12, No.4, Page-254

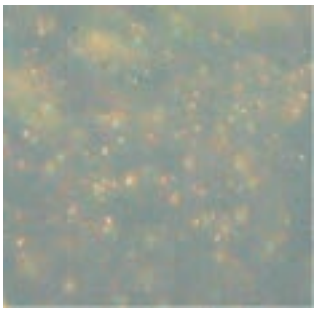
Experiment setup consists:

a) Electric field plate & microscope

b) Power supply

c) Digi-eye camera (Optional)

(a)



Oil Drop captured by Digieye camera

(b)

(c)

Specifications:

a) Electric field plate & microscope
Electric plate with fixed distance and terminals for high voltage supply
Illumination: Incandescent focussed light beam with position adjustment
Atomizer with oil chamber for fine mist
Microscope: 45x to 100x magnification with focus knob
Sample: Mineral oil (provided)

b) Power supply
High voltage: For parallel plate chamber with variable voltage from 0 - 300 V continuously variable
Low voltage: For illumination
Rated Input: 220 V/50 Hz
or 110 V/60 Hz

c) Digi-eye camera (Optional)
Type: USB
Requires Windows 7 PC with at least 300 MB of free memory
Resolution: 1.3 MP

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Model: TEM-1101/108

e/m BY THOMSON's METHOD

Experiment(s):

1. Determination of e/m of an electron by Thomson's method

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-11, No.4, Page-253

Experiment setup consists:

a) Power supply
b) CRT tube
c) Stand
d) Compass
e) Magnet

(a)

(b)

(c)

(d)

(e)

Specifications:

a) Power supply
High tension and low tension bias supply for CRT tube,
Variable deflection voltage for x-shift and y-deflection beam movements
Meter: Digital voltmeter for measuring deflection potential
Rated Input: 220 V/50 Hz
or 110 V/60 Hz

b) CRT tube
Diameter: 60 mm
Scale: x-axis and y-axis marked in mm with zero adjustment & position of deflecting plates marked

c) CRT/Compass stand
Material: Acrylic
Magnet guide bed: For equi-distance movement up to 15 cm on either sides

d) Compass
Size: 100 mm diameter
Mirror for reduced parallax error

e) Bar magnet pair
Material: AlNiCo
Size: 50 mm

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ENERGY GAP OF SEMICONDUCTOR USING SILICON DIODE

Model: SEG-201/109

Experiment(s):

1. Determination of Energy gap of a semiconductor sample

(For more details, procedure & manual visit: www.kamaljeeth.net)

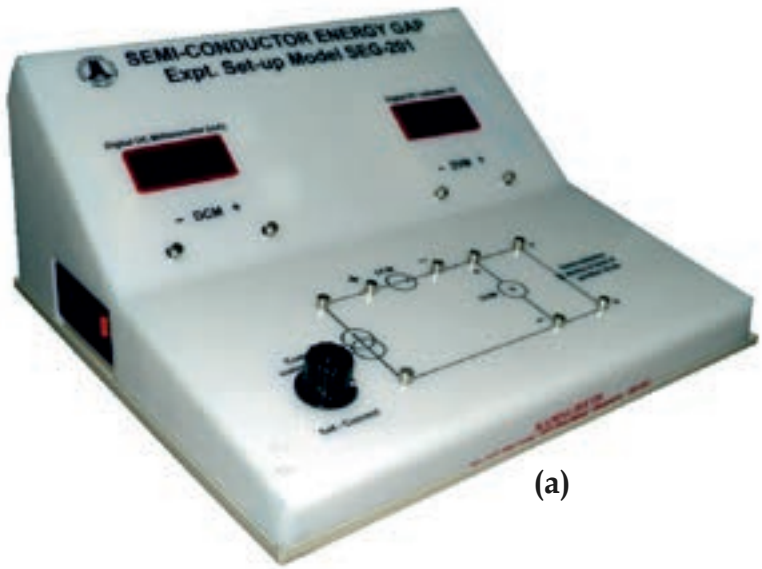
Reference : Lab Experiments Journal vol-5, No.1, Page-11

Experiment setup consists:

a) Semiconductor energy gap kit

b) Digital thermostat

c) Electric kettle & stand



(a)

(b)

(c)

Specifications:

a) Semiconductor energy gap kit
Voltmeter: 0-20 V
Resolution: 0.01 V
Ammeter: 0-200 mA
Resolution: 0.1 mA
Source: Built-in constant current source with variable output current setting
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: <40 W
Cabinet: Acrylic body, aluminium bottom
Connectors:
2 mm - 2 mm brass moulded patch cords

b) Digital thermometer
Range: 300 °C
Resolution: 0.1 °C

c) Electric kettle & stand
Kettle capacity: 0.5 L
Maximum temperature: 100 °C
Stand: Height adjustable and holds test tube with sample and temperature probe

Model: FE-501/110

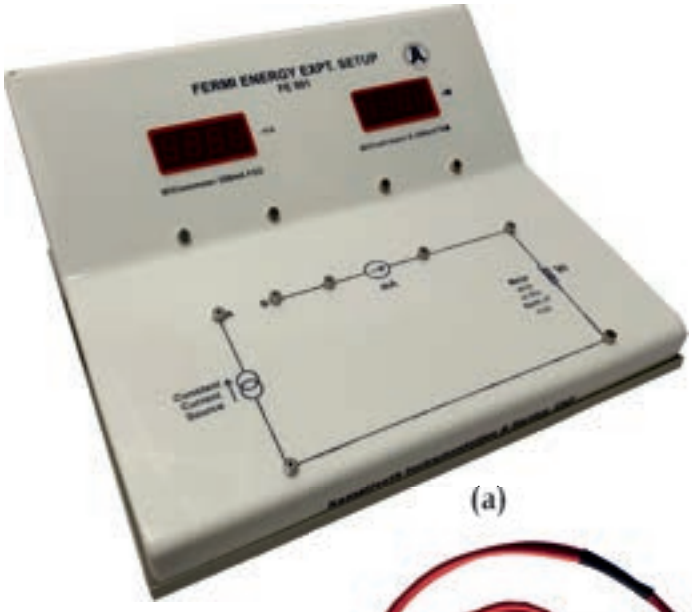
FERMI ENERGY IN COPPER

Experiment(s):

1. Determination of Fermi energy level in copper

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-5, No.4, Page-299



(a)

(b)

(c)

Experiment setup consists:

a) Fermi energy kit

b) Digital thermostat

c) Electric kettle & stand

Specifications:

a) Fermi energy kit
Voltmeter: 0-200 mV
Resolution: 0.1 mV
Ammeter: 0-200 mA
Resolution: 0.1 mA
Source: Built-in constant current source
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: <40 W
Cabinet: Acrylic body, aluminium bottom
Connectors:
2 mm-2 mm brass moulded patch cords

b) Digital thermometer
Range: 300 °C
Resolution: 0.1 °C

c) Electric kettle & stand
Kettle capacity: 0.5 L
Maximum temperature: 100 °C
Stand: Height adjustable and holds test tube with sample and temperature probe

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FERRO-MAGNETIC CURIE TEMPERATURE

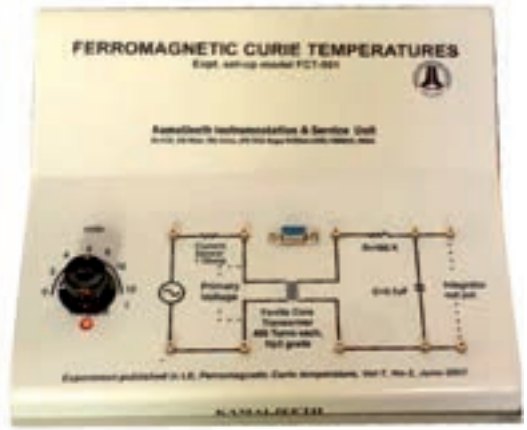
Model: FCT-201/111

Experiment(s):

1. Determination of Curie temperature of HP3 grade ferrite core

(For more details, procedure & manual visit: www.kamaljeeth.net)

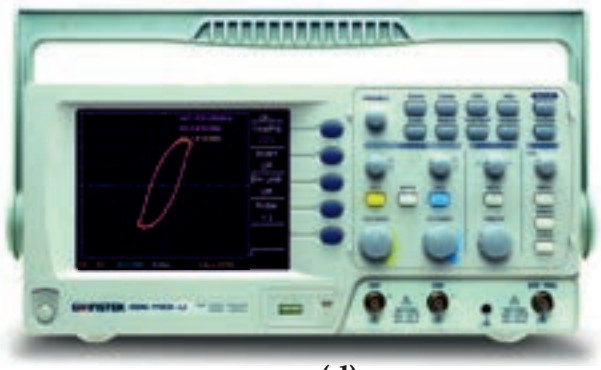
Reference : Lab Experiments Journal vol-7, No.2, Page-95



(a)

(b)

(c)



(d)

Specifications:

a) Ferromagnetic curie temperature kit
Coil: Ferrite core copper coils with 1:1 primary & secondary windings
Power supply: Built in AC source with voltage selection from 2 V to 12 V AC
Temperature indicator: Digital thermometer battery operated
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: <50 W
Cabinet: Acrylic body, aluminium bottom

b) Digital thermometer
Range: 300 °C
Resolution: 0.1 °C

c) Electric kettle & stand
Kettle Capacity: 0.5 L
Max Temp: 100 °C
Stand: Height adjustable and holds test tube with sample and temperature probe
OR
Heating: Oven heating up to 200 °C

d) Digital Storage Oscilloscope
Make: GW Instek
Model: 1102-U
Bandwidth: 100 MHz
Channels: 2
Sampling rate: 250 million samples/sec
Display: 5.7" TFT Colour
USB PC interface: Yes
Warranty: 5 years

Model: FP-1911/112

FOUR PROBE APPARATUS

Experiment(s):

1. Resistivity variation with temperature for a semiconductor sample

2. Determination of energy gap of a semiconductor sample

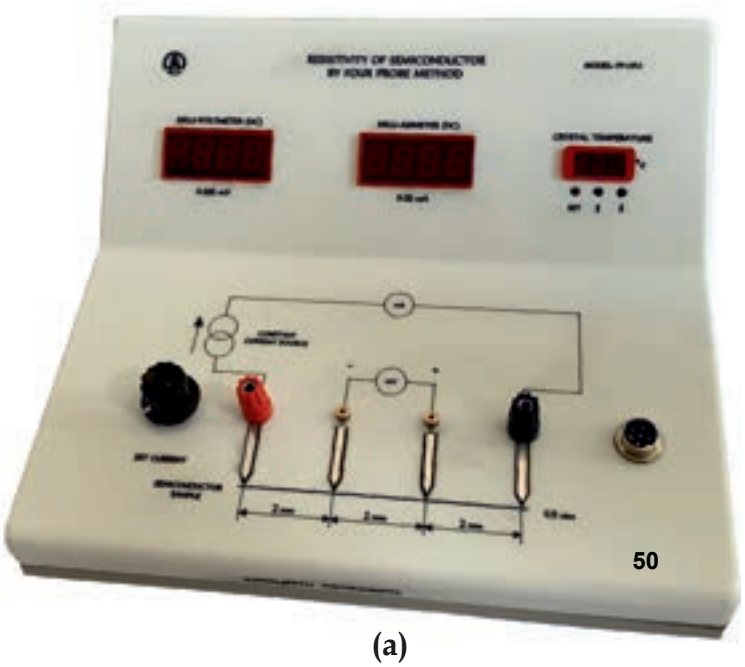
(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-11, No.1, Page-1
Lab Experiments Journal vol-10, No.4, Page-316

Experiment setup consists:

a) Resistivity of semiconductor by four probe kit

b) Four probe arrangement & Heater



(a)

(b)

Specifications:

a) Resistivity of semiconductor by four probe kit
Voltmeter: 0-200 mV
Resolution: 0.1 mV
Ammeter: 0-20 mA
Resolution: 0.01 mA
Source: Built-in constant current source with variable output current setting
Internally connected voltmeter and current meters
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power Consumption: <200 W
Digital thermostat
Resolution: 0.1 °C
Max temperature: 110 °C
Set temperature: with-in ±1 °C

b) Four probe arrangement:
Crystal: Mounted on heating element (electrically insulated)
Sample: Germanium
Size: 10 mm x 5 mm x 1 mm
Pitch of each probe: 2 mm
Heater: 100 W

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HALL EFFECT

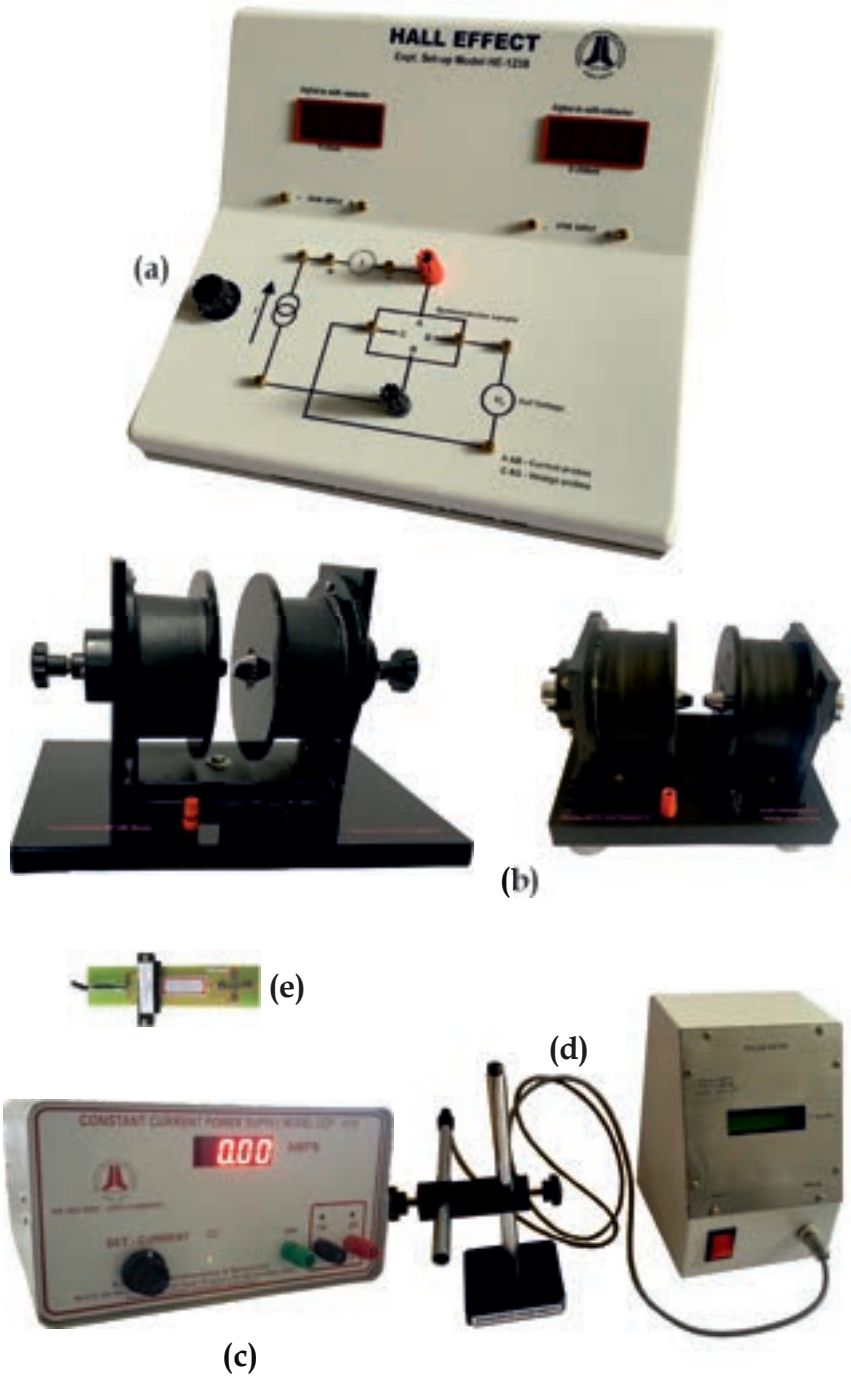
Model: HE-201/113
HE-201LC/113

Experiment(s):

1. Observe Hall effect in doped semiconductors and determination of charge density and velocity of charge carriers in the lattice

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-14, No.2, Page-86



Specifications:

a) Hall effect kit: Consists of variable constant current power supply, built in dc digital millivoltmeter and dc digital milliammeter, cabinet made of acrylic,
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
short circuit protected

b) Magnet
HE-201: 100 mm dia magnet with user adjustable pole gap from 1 mm till 20 mm , capable of producing magnetic flux of upto 10K Gauss at 10 mm pole gap

HE-201LC: 50 mm dia magnet with non adjustable pole gap fixed at 10 mm, capable of producing magnetic flux of upto 5K Gauss at 10 mm pole gap

c) Power supply
HE-201: Heavy duty power supply with variable constant current, provided with digital current meter, max 400 W
HE-201LC: Variable constant current power supply, provided with digital current meter, max 60 W

d) Gauss meter: Measures magnetic flux upto 20K Gauss detachable gauss probe

e) Hall probe: HE-201: Available in n-type and p-type mounted on PCB with a holder
HE-201LC:- Available in n-type mounted on PCB with a holder

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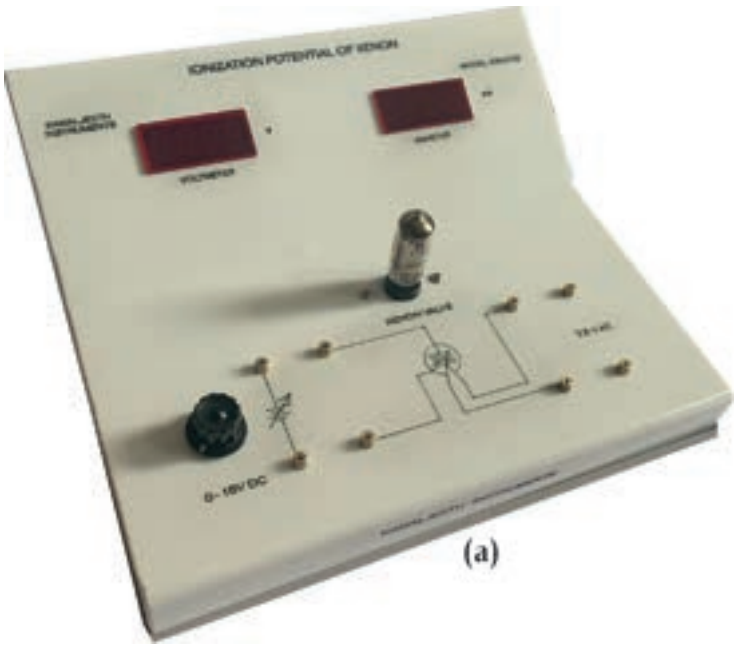
Model: VI-101/114

IONIZATION POTENTIAL OF XENON

Experiment(s):

1. To draw I-V characteristics of xenon filled Thyraton and determine its ionization potential

(For more details, procedure & manual visit: www.kamaljeeth.net)



(a)

(b)

(c)

Experiment setup consists:

a) Ionization potential of Xenon kit

b) Thyraton valve tube

c) Patch cords

Specifications:

a) Ionization potential of Xenon kit
Power supply: 0-15V DC variable & regulated, Short circuit protected
AC power supply: 7.5V AC fixed voltage for filament
Voltmeter: Digital DC 3½ digit
Range: 20V
Resolution: 0.01V
Current meter: Digital DC 3½ digit
Range: 200 µA
Resolution: 0.1 µA
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: <50W
Cabinet: Acrylic body, aluminium bottom

b) Thyraton valve tube
Inert gas: Xenon
Heating: Filament type
Heating voltage: 7 V

c) Patch cords
Set of standard 2 mm Patch cords of different lengths with spare cords

JFET CHARACTERISTICS

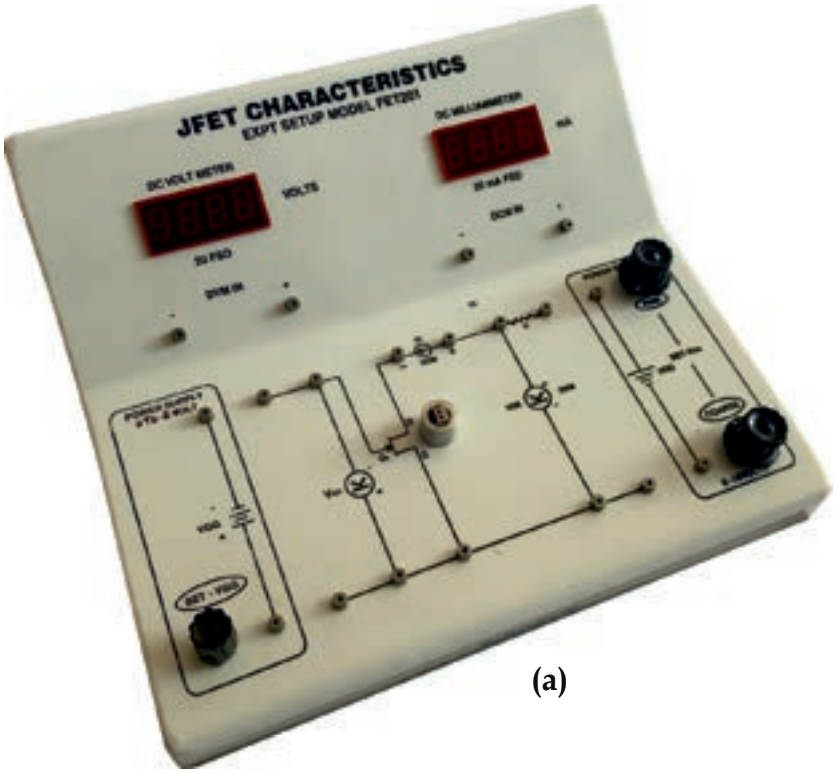
Model: FET-201/115

Experiment(s):

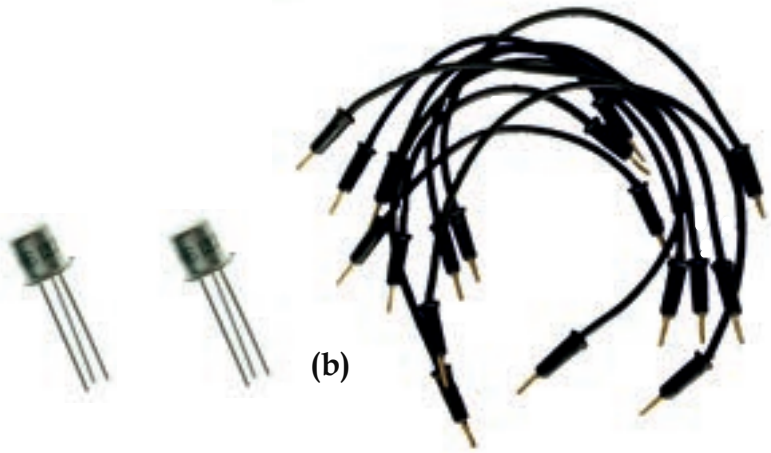
1. Drain curves & transconductance curves, determination of GMO, IDSS, Vp. Variation of drain, source resistance with gate voltage & variation of transconductance with gate voltage

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-14, No.4, Page-274
Lab Experiments Journal vol-3, No.4, Page-340



(a)



(b)

Experiment setup consists:

a) JFET characteristics kit

b) Patch cords

Specifications:

a) JFET characteristics kit
Input: Built-in regulated DC source 0-5 V (1 no.)
Built-in regulated DC source 0-10 V (1 no.) with fine and coarse variation knob
Meter: Digital DC voltmeter
Display: Digital DC 3½ digit, LED
Range: 20 V
Resolution: 0.1 V
Current meter: Digital DC milliammeter
Display: Digital DC 3½ digit, LED
Range: 20 mA
Resolution: 0.01 mA
FET: Externally mountable
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Cord/Socket: 3 pin
Power Consumption: <30 W
Cabinet: Acrylic body, aluminium bottom

b) Patch cords
Set of standard 2 mm Patch cords of different lengths with spare cords

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Model: LED-1908/116

LED I-V CHARACTERISTICS

Experiment(s):

1. Determination of knee voltage, plotting I-V characteristics in forward and reverse bias for an LED

(For more details, procedure & manual visit: www.kamaljeeth.net)

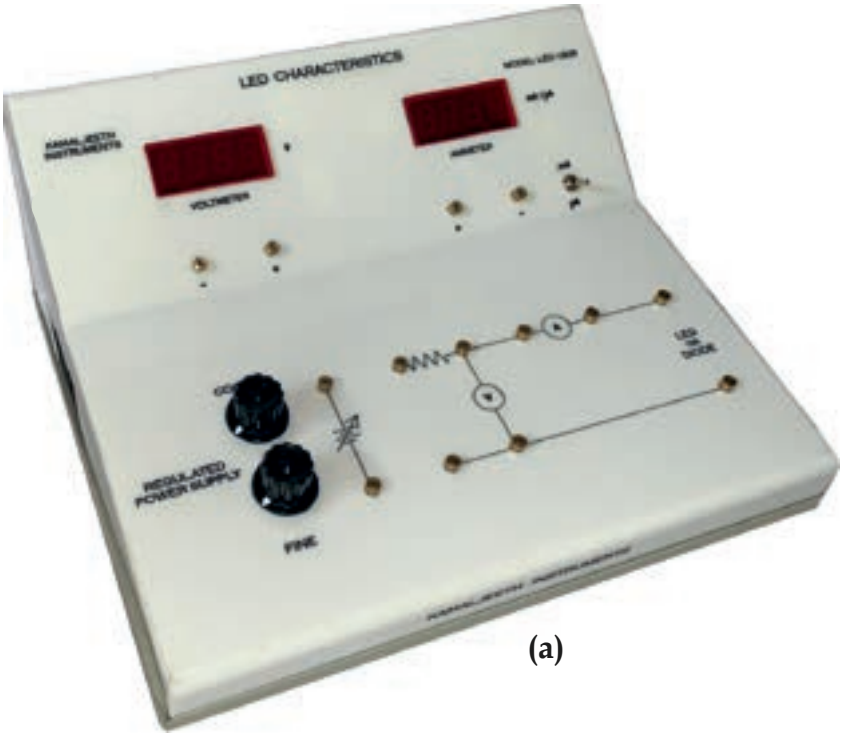
Reference : Lab Experiments Journal vol-1, No.1, Page-20

Experiment setup consists:

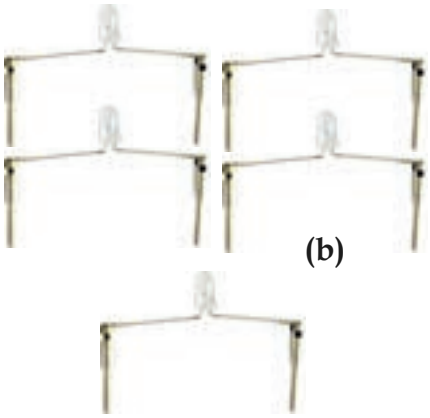
a) LED characteristics kit

b) Set of LEDs

c) Patch cords



(a)



(b)

(c)

Specifications:

a)LED characteristics kit
Power supply: 0-20 V DC variable & regulated
Volt meter: Digital DC 3½ digit
Range: 20 V
Resolution: 0.01 V
Current meter: Digital DC 3½ digit
Range selector: Single step
Range: 200 mA or 200 µA
Resolution: 0.1 mA or 0.1 µA
Device mounting: External
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: < 50W
Cabinet: Acrylic body, aluminium bottom

b) Semi-conductor devices
LEDs - Red , Yellow, Green, Blue & IR

c) Patch cords
Set of standard 2 mm Patch cords of different lengths with spare cords

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OPTO-COUPLER CHARACTERISTICS

Model: OC-301/117

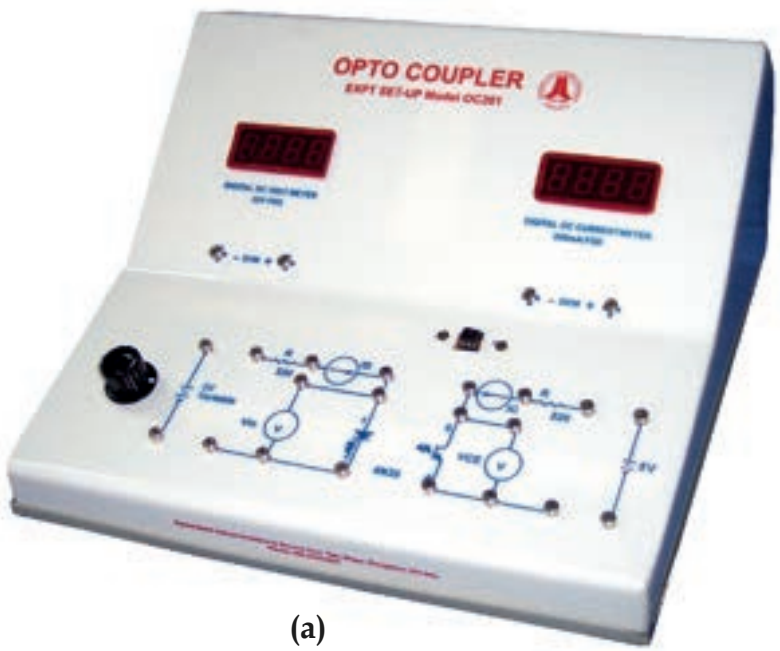
Experiment(s):

1. Input/output & transfer characteristics of an opto coupler

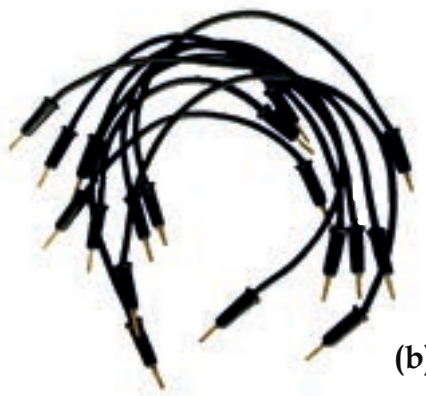
2. Determination of voltage & current transfer ratio

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-10, No.1, Page-41



(a)



(b)

Experiment setup consists:

a) Opto-coupler kit

b) Set of patch cord

Specifications:

a) Opto-coupler kit
Voltmeter: Digital DC voltmeter
Display: 3½ digit, LED
Range: 20 V
Resolution: 0.01 V
Current Meter: Digital DC current meter
Display: 3½ digit, LED
Range: 200 mA
Resolution: 0.1 mA
Power Supply 1: Regulated DC variable power supply
Voltage: 0-5 V
Power Supply 2: Regulated DC fixed power supply
Voltage: 5 V
Opto-Coupler: IC 4N35, externally mountable
Components: Set of internally connected in-built components
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: <30 W
Cabinet: Acrylic body, aluminium bottom

b) Patch cords
Set of standard 2 mm Patch cords of different lengths with spare cords

Model: PT-501/118

PHASE TRANSITION IN BARIUM TITANATE/ CURIE-WEISS LAW

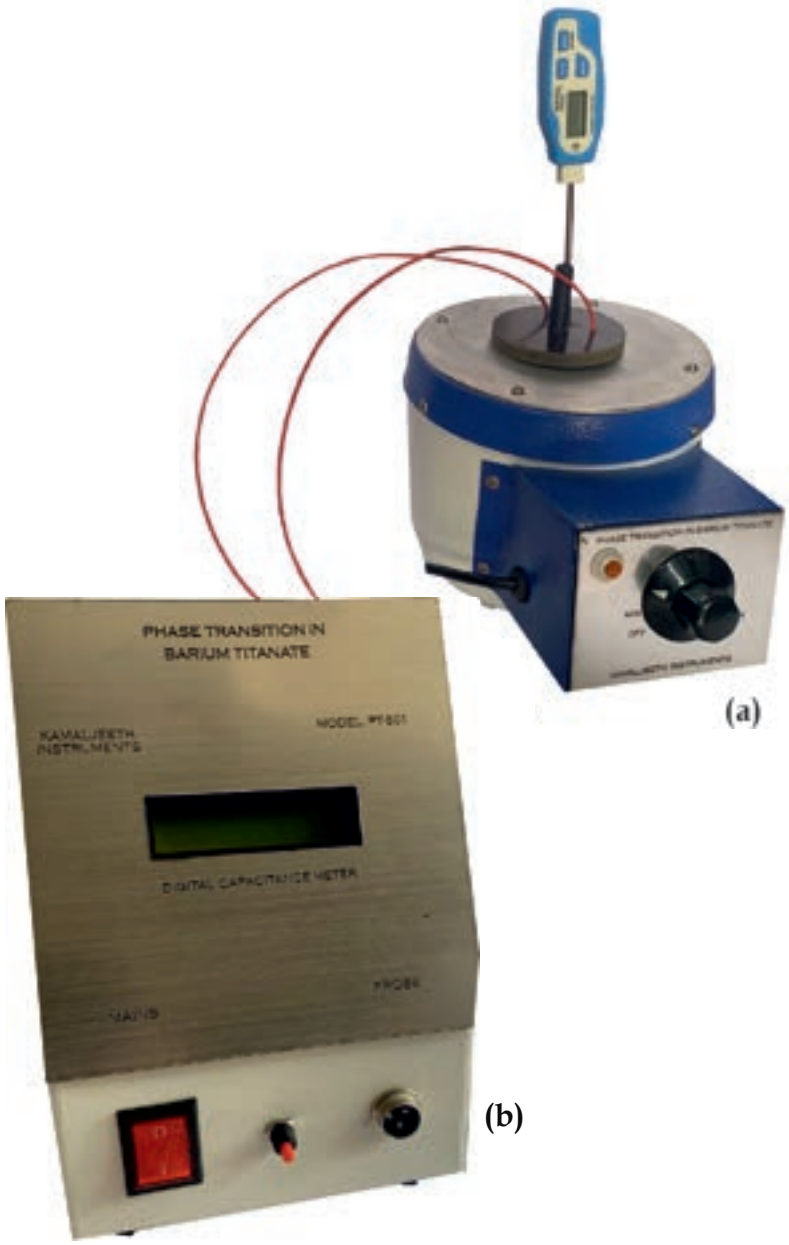
Experiment(s):

1. Determination of ferro electric phase transition & verification of Curie-Weiss Law

2. Ferro electric phase transition in Barium Titanate

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-8, No.3, Page-228



(a)

(b)

Experiment setup consists:

a) Heater, thermometer and Parallel plate capacitor arrangement

b) Capacitance meter

Specifications:

a) Heater, thermometer and Parallel plate capacitor arrangement
Heating mantel with thermostat
Temperature: upto 200 °C
Heating indication: Yes
Sample: Barium Titanate
Capacitance: Parallel plate capacitor with interchangeable dielectric medium
Thermometer: Digital battery operated
Range: 300 °C
Resolution: 0.1 °C

b) Capacitance meter
Range 0 - 1000 pF
Resolution: 1 pF
Mains Socket: 3 Pin with fused protection
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: <30 W
Cabinet: Acrylic body, aluminium bottom

PHOTO-DIODE CHARACTERISTICS

Model: PD-501/119

Experiment(s):

1. Determination of Responsivety, Quantum efficiency & I-V characteristics

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-10, No.2, Page-111

Experiment setup consists:

a) Photo diode characteristics kit

b) Illumination Chamber

(a)

(b)

Specifications:

a) Photo diode characteristics kit:
Power supply: 0 - 3 V (DC) variable & regulated, short circuit protected
Volt meter: Digital DC 3½ digit
Range: 20 V
Resolution: 0.01 V
Current meter: Digital DC 3½ digit
Range: 2000 µA
Resolution: 1 µA
Semi-conductor devices: Photo-diode
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power Consumption: <50 W
Cabinet: Acrylic body, aluminium bottom

b) Illumination chamber:
Independent LED type with variable input power
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: <20W

Connectors:
2mm-2mm brass moulded patch cords

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Model: PTC-201/120

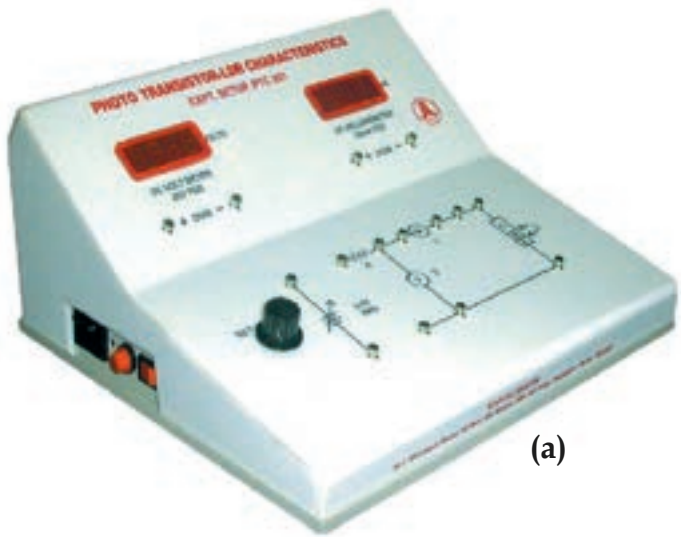
PHOTO-TRANSISTOR / LDR / PHOTO-CELL CHARACTERISTICS

Experiment(s):

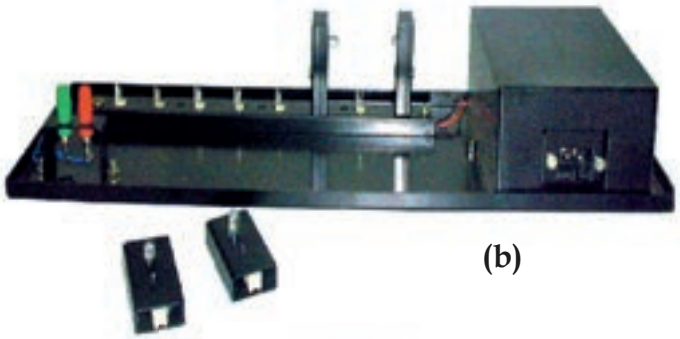
1. I-V characteristics & Spectral response of photo transistor, LDR and photo cell

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-3, No.1, Page-18
Lab Experiments Journal vol-10, No.2, Page-111
Lab Experiments Journal vol-2, No.2, Page-36



(a)



(b)

(c)

Experiment setup consists:

a) Photo transistor LDR characteristics kit

b) Illumination chamber

Specifications:

a) Photo transistor LDR characteristics kit
Power supply: 0-5 V (DC) variable & regulated, Short circuit protected
Volt meter: Digital DC 3½ digit
Range: 20 V
Resolution: 0.01 V
Current meter: Digital DC 3½ digit
Range: 20 mA
Resolution: 0.01 mA
Devices: Photo- transistor, LDR and Photo cell
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power Consumption: <50 W
Cabinet: Acrylic body, aluminium bottom

b) Illumination chamber
Independent LED illumination chamber
Slot for distance variation of photo cell/ LDR/ photo transistor
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power Consumption: <20 W

c) Connectors: 2 mm-2 mm brass moulded patch cords

PHOTO ELECTRIC EFFECT
PLANCK's CONSTANT

Model: PHO-501/121

Experiment(s):

1. Verification of Einstein's photo electric equation

2. Determination of Planck's constant, photonic work function

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-10, No.4, Page-316

Experiment setup consists:

a) Planck's constant kit

b) Photo tube arrangement

c) Filters set

(a)

(b)

(c)

Specifications:

a) Planck's constant kit
Consists of built-in power supply: 0 - 5 V variable, regulated & short circuit protected
Voltmeter: 0-20 V, 3½ digit, LED display
Current meter: 0-200 nA, 3½ digit, LED display
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power Consumption: <50 W
Cabinet: Acrylic body, aluminium bottom
Connectors: 2 mm - 2 mm moulded brass pin patch cords

b) Photo tube
Wavelength sensitive photo tube fitted with independent illumination
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: <20 W

c) Filters
Set of 5 calibrated filters of known wavelength

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Model: PLA-301/122

PLANCK's CONSTANT USING EINSTEIN's EQUATION

Experiment(s):

1. Determination of Planck's constant using Einstein's equation

(For more details, procedure & manual visit: www.kamaljeeth.net)

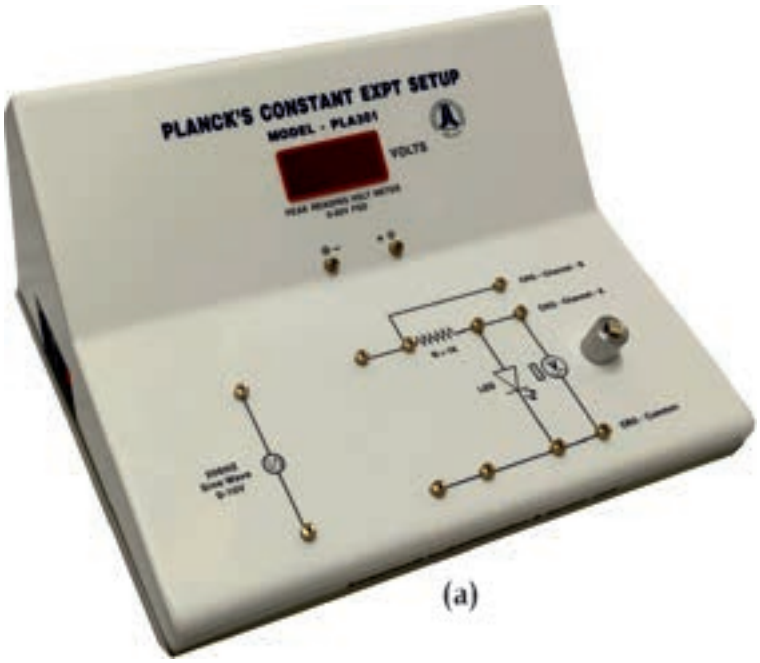
Reference : Lab Experiments Journal vol-4, No.1, Page-11

Experiment setup consists:

a) Planck's constant kit

b) Set of LEDs

c) Set of patch cords



(a)

Specifications:

a) Planck's constant kit
Power supply: Fixed frequency sine wave 0-10 V
Voltmeter: Digital DC 3½ digit wideband (upto 200 KHz) peak reading meter
Range: 20 V
Resolution: 0.01 V
LED Mounting: External
Output: Via CRO and Voltmeter
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power Consumption: <50 W
Cabinet: Acrylic body, aluminium bottom

b) Set of LEDs
Quantity: 5 different LEDs x 2 sets
LEDs of known wavelength:
4 LEDs in visible range and
1 Infrared LED

c) Connectors: 2mm-2mm brass moulded patch cords

(b)

(c)

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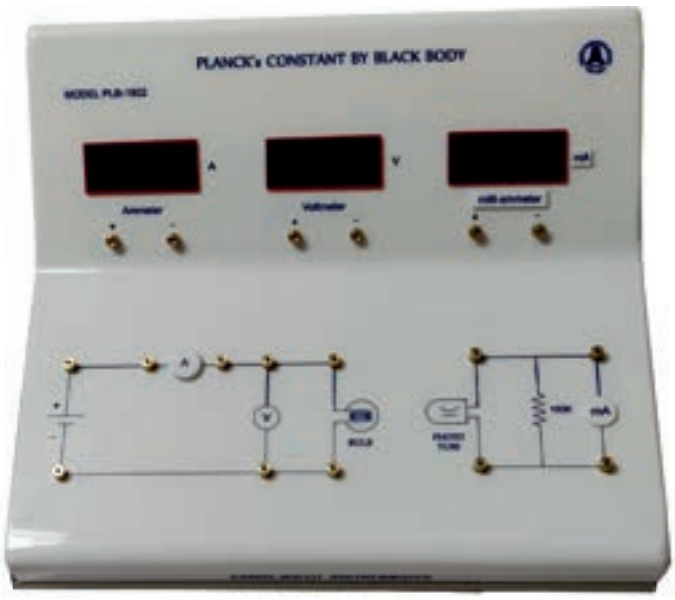
PLANCK's CONSTANT BY BLACK BODY

Model: PLB-1902/123

Experiment(s):

1. Determination of Planck's constant by black body radiation

(For more details, procedure & manual visit: www.kamaljeeth.net)



(a)

(b)

Experiment setup consists:

a) Planck's constant by black body kit

b) Photo tube chamber

Specifications:

a) Planck's constant by black body kit
Power supply:
Fixed voltage source
Voltmeter:
Range: 20 V
Resolution: 0.01 V
Ammeter:
Range: 2 A
Resolution: 0.001 A
Milli-Ammeter:
Range: 200 mA
Resolution: 0.1 mA
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power Consumption: <50 W
Cabinet: Acrylic body, metal bottom
Connectors:2 mm - 2 mm brass moulded patch cords

b) Photo tube Chamber
Photo Tube: GD-28
Filter: 555 nm fixed filter
Illumination: Tungsten filament light source
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power Consumption: <30 W
Cabinet: Metal

Model: QU-201/124

QUINCKE's METHOD (SUSCEPTIBILITY)

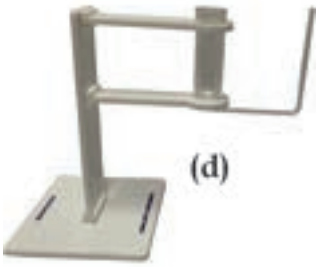
Experiment(s):

1. Measurement of magnetic susceptibility of liquids

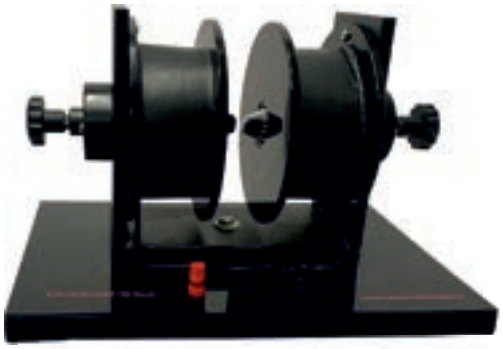
(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-14, No.4, Page-257
Lab Experiments Journal vol-14, No.2, Page-138

(a)

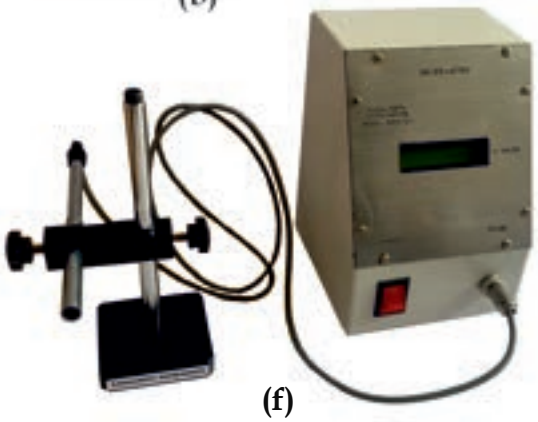


(d)



(b)

(c)



(f)

(e)

Specifications:

a) Digital travelling microscope
Number of axis: 1 (Vertical)
Base: Cast iron
Moving parts: Brass
Focus: Adjustable
Free movement: 150 mm
Micrometer movement: 10 mm
Least count: 0.01 mm
Display: LCD
Detector: Resistive type
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: <20W

b) Electromagnet
Magnetic flux: Up to 10K Gauss
Pole gap: adjustable from 1 mm to 25 mm
Poles: Tapered
(Flat available on request)

c) Power supply
Constant current regulated power supply with adjustable current

d) U-Tube
U-tube with acrylic stand

e) Samples
FAS and NAS

f) Gauss meter:
Measures magnetic flux up to 20K Gauss
Resolution: 0.1K Gauss
Detachable gauss probe with stand

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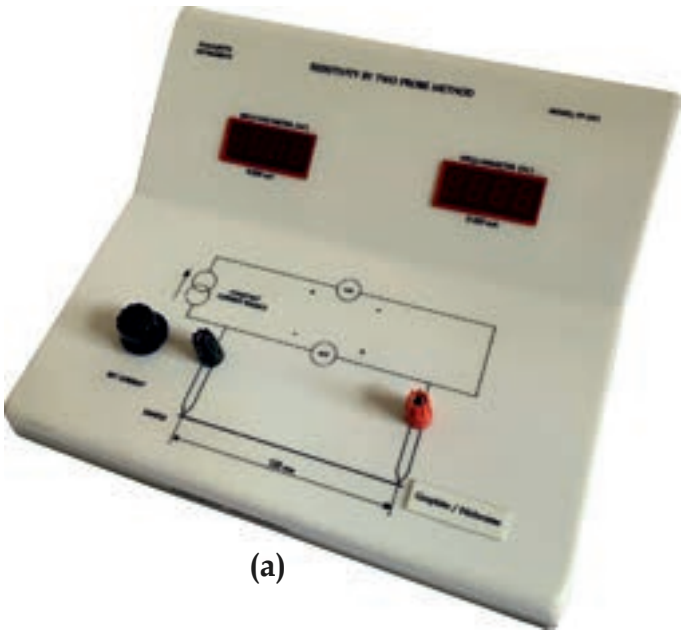
RESISTIVITY BY TWO PROBE METHOD

Model: FP-1191/125

Experiment(s):

1. Determination of resistivity of wire Nichrome and Carbon by two probe method

(For more details, procedure & manual visit: www.kamaljeeth.net)



(a)

(b)

(c)

Experiment setup consists:

a) Resistivity by two probe method kit

b) Thin wire sample holder

c) Fixed sample holder

Specifications:

a) Resistivity by two probe method kit
Voltmeter: 0-200 mV
Resistolution: 0.1 mV
Ammeter: 0-200 mA
Resistolution: 0.1 mA
Source: Built-in constant current source
Distance between Probes: 120 mm (Fixed)
Samples: Nichrome (provided)
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: <40W
Cabinet: Acrylic body, aluminium bottom
Connectors: 2mm-2mm brass moulded patch cords

b) Thin wire sample holder
Wire Sample holder for Dia 0.2mm to 8mm samples

c) Fixed Sample holder
Non-changable sample holder
Provided with Graphite sample of 16mm

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Model: BBR-301/126

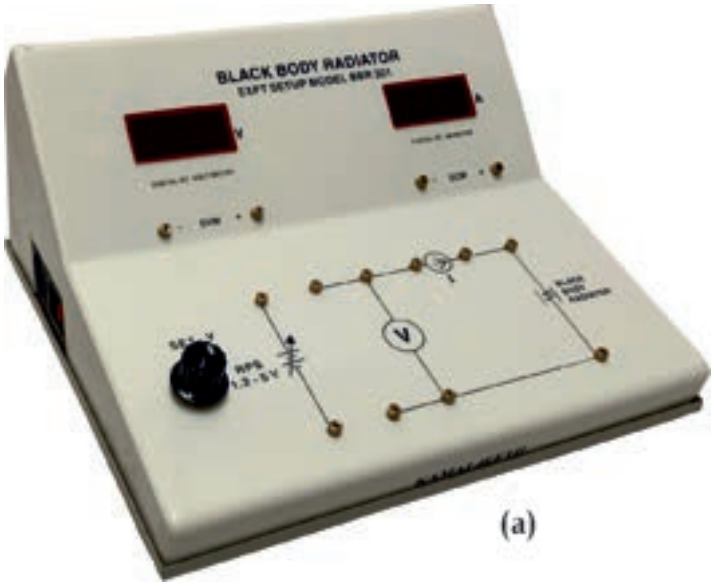
STEFAN's CONSTANT (BLACK BODY RADIATOR)

Experiment(s):

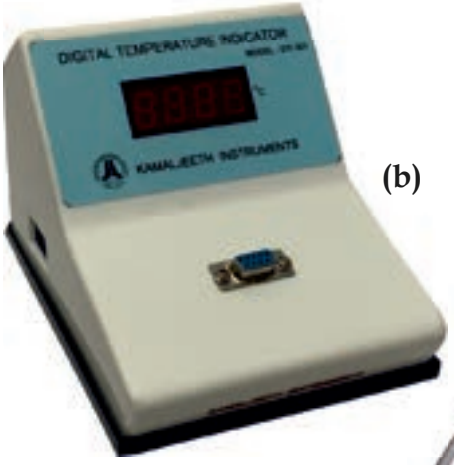
1. Determination of Stefan constant and verification of Stefan-Boltzmann Law (4th power law)

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-2, No.3, Page-57
Lab Experiments Journal vol-13, No.2, Page-112



(a)



(b)

Experiment setup consists:

a) Black body radiator kit

b) Temperature sensor

Specifications:

a) Black body radiator kit
Power supply: 0-7 V DC variable & Short circuit protected
Volt meter: Digital DC 3½ digit
Range: 20 V
Resolution: 0.01 V
Current meter: Digital DC 3½ digit
Range: 2 A
Resolution: 0.01 A
Black Body: 26 mm blackened by chemical treatment
Heater: Resistance type
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power Consumption: < 50W
Cabinet: Acrylic body, aluminium bottom

b) Temperature sensor
Range: 200 °C
Resolution: 0.1°C
Temperature sensor probe: mounted on surface of black body
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power Consumption: < 20 W

SEMI-CONDUCTOR TEMPERATURE SENSOR

Model: STS-501/127

Experiment(s):

1. Temperature sensitivity of temperature sensor ICs

(For more details, procedure & manual visit: www.kamaljeeth.net)

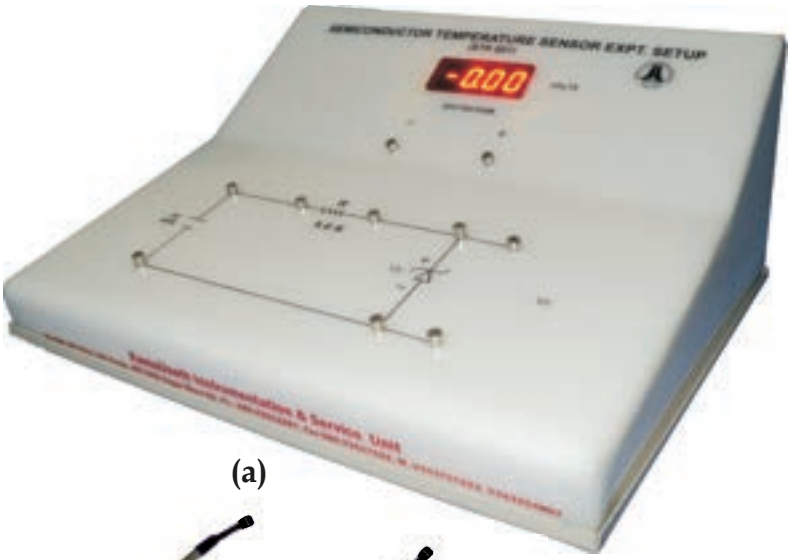
Reference : Lab Experiments Journal vol-1, No.1, Page-8

Experiment setup consists:

a) Semiconductor temperature sensor kit

b) Digital thermometer

c) Electric kettle & stand



(a)

(b) (c)

Specifications:

a) Semiconductor temperature sensor kit
Consists of built-in power supply:
5V regulated & short circuit protected
Voltmeter: 0-20 V, 3½ digit, LED display
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power Consumption: <50 W
Cabinet: Acrylic body, aluminium bottom
Connectors: 2 mm - 2 mm moulded brass pin patch cords
Temperature Sensor: LM35 and LM335

b) Digital thermometer
Range: 300 °C
Resolution: 0.1 °C

c) Electric kettle & stand
Kettle capacity: 0.5 L
Max. Temperature: 100 °C
Stand: Height adjustable and holds test tube with sample and temperature probe

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Model: SOL-301/128

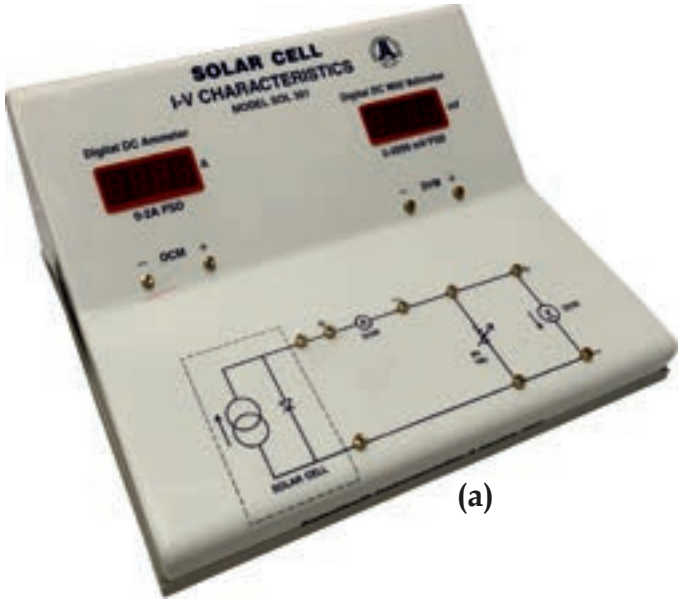
SOLAR CELL
I-V CHARACTERISTICS

Experiment(s):

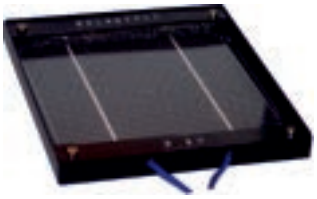
1. Determination of open circuit voltage, short circuit current, efficiency, maximum power point power, I-V Characteristics & fill factor.

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-1, No.1, Page-16



(a)



(c)

(d)

(b)

Experiment setup consists:

a) Solar cell characteristics kit
b) Illumination chamber
c) Solar cell
d) Decade resistance box

Specifications:

a) Solar cell characteristics kit
Voltmeter: 0-2 V, 3½ digit, LED display
Current meter: 0-2 A, 3½ digit, LED display
Connectors: 2 mm - 2 mm brass moulded patch cords
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power Consumption: <50 W
Cabinet: Acrylic body, aluminium bottom

b) Illuminated chamber
Halogen bulb: 60 W
Cooling via mini exhaust fan
Adjustable distance for mounting solar panel
Rated Input: 220 V/50 Hz
or 110 V/60 Hz

c) Solar cell
Size: 100 x 100 mm mono-crystalline ,
MR16 type 1 W output
Open circuit Voltage: 500 mV

d) Decade resistance box
0 to 1 Ω variable in steps of 0.1 Ω

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THERMISTOR RESISTANCE VARIATION

Model: TRV-1101/129

Experiment(s):

1. Determination of thermistor resistance variation with temperature and energy gap

(For more details, procedure & manual visit: www.kamaljeeth.net)

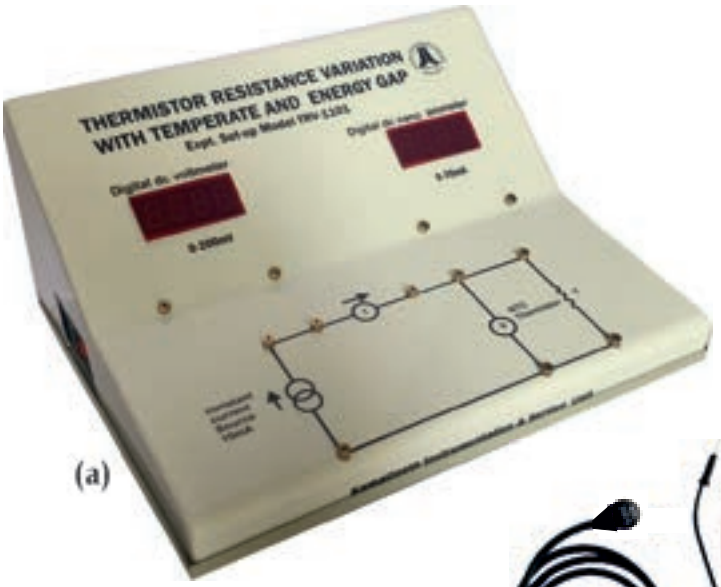
Reference : Lab Experiments Journal vol-11, No.3, Page-205

Experiment setup consists:

a) Thermistor resistance variation kit

b) Digital thermometer

c) Kettle and stand



(a)

(b) (c)

Specifications:

a) Thermistor resistance variation kit
Voltmeter: 0-200 mV, 3½ digit, LED display
Resolution: 0.1 mV
Current meter: 0-20 mA, 3½ digit, LED display
Resolution: 0.01 mA
Connectors: 2 mm - 2 mm brass moulded patch cords
Thermistor: Negative temperature coefficient
Inbuilt constant current source
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power Consumption: <50 W
Cabinet: Acrylic body, aluminium bottom

b) Digital thermometer
Range: 300 °C
Resolution: 0.1 °C

c) Electric kettle & stand
Kettle capacity: 0.5 L
Max. temperature: 100 °C
Stand: Height adjustable and holds test tube with sample and temperature probe

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Model: TRC-501/130

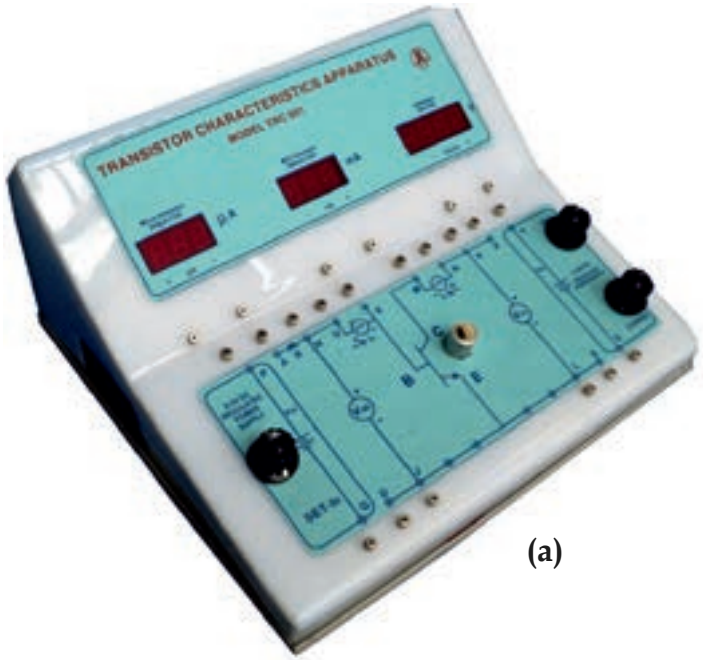
TRANSISTOR CHARACTERISTICS

Experiment(s):

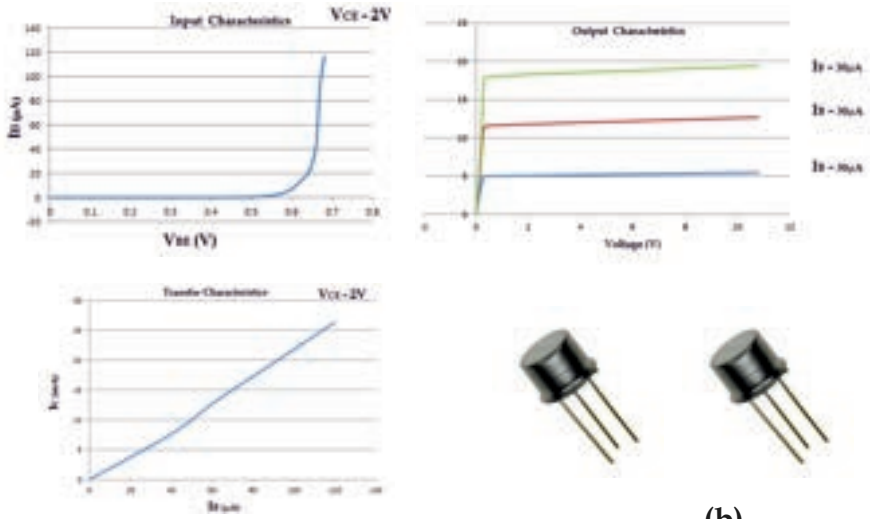
1. Study of input, output & transfer characteristics and calculation of input resistance, output resistance and amplification factor for any given n-p-n transistor.

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Detailed textbook of Engineering physics practicals by S P Basavaraju, Page -121



(a)



(b)

Experiment setup consists:

a) Transistor characteristics kit

b) Set of transistors

Specifications:

a) Transistor characteristics kit
Power supply: 0-10 V DC variable & regulated
Power supply: 0-5 V DC variable & regulated
Volt meter: Digital DC 3½ digit
Range: 20 V
Resolution: 0.01 V
Current meter: Digital DC 3½ digit
Range: 200 mA
Resolution: 0.1 mA
Current meter: Digital DC 3½ digit
Range: 200 µA
Resolution: 0.1 µA
Device mounting: External
Semi-conductor devices: n-p-n transistor
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power Consumption: <50 W
Cabinet: Acrylic body, aluminium bottom
Connectors:
2 mm - 2 mm brass moulded patch cords

b) Silicon transistor
Type: n-p-n
Part number: SL-100

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UJT CHARACTERISTICS

Model: UJT-201/131

Experiment(s):

1. I-V Characteristics, determination of intrinsic stand of ratio, base to base resistance, value point & peak point voltages

(For more details, procedure & manual visit: www.kamaljeeth.net)

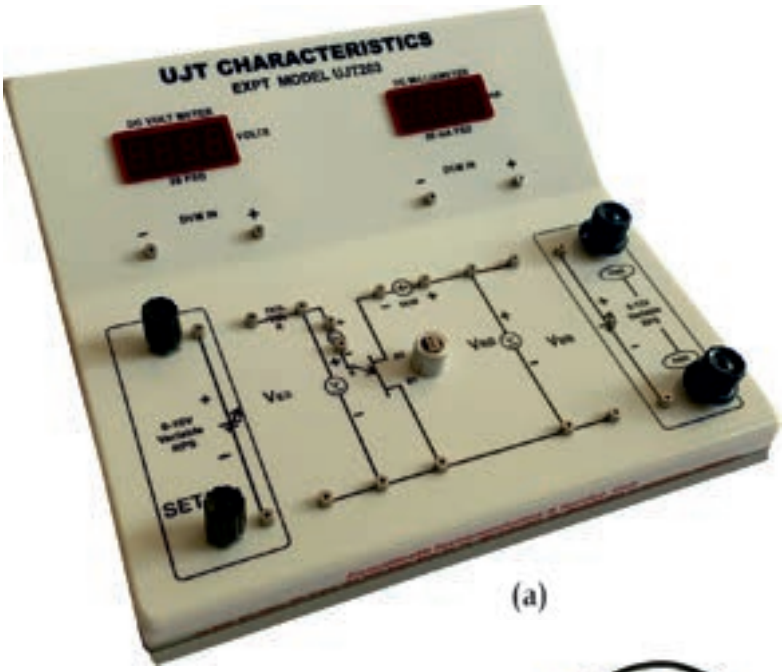
Reference : Lab Experiments Journal vol-3, No.2, Page-129

Experiment setup consists:

a) UJT characteristics kit

b) UJT module

c) Set of patch cords



(a)

(b)

(c)

Specifications:

a) UJT characteristics kit
Voltmeter: Digital DC voltmeter
Display: 3½ digit, LED
Range: 20V
Resolution: 0.01 V
Current meter: Digital DC current meter
Display: 3½ digit, LED
Range: 20 mA
Resolution: 0.01 mA
Components: Internally connected
UJT: External mounting type
Power supply 1: Variable DC power supply
Voltage: 0 - 10 V with coarse and fine adjusts
Power Supply 2: Variable DC power supply
Voltage: 0 - 12 V with coarse and fine adjusts
Connectors: 2 mm Patch Cords
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power Consumption: <30 W
Cabinet: Acrylic body, aluminium bottom

b) Externally mounting UJT

c) Set of patch cords

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Model: DHR-201/200

HELMHOLTZ RESONATOR

Experiment(s):

1. Verification of Helmholtz law

2. Determination of volume of the resonator

(For more details, procedure & manual visit: www.kamaljeeth.net)

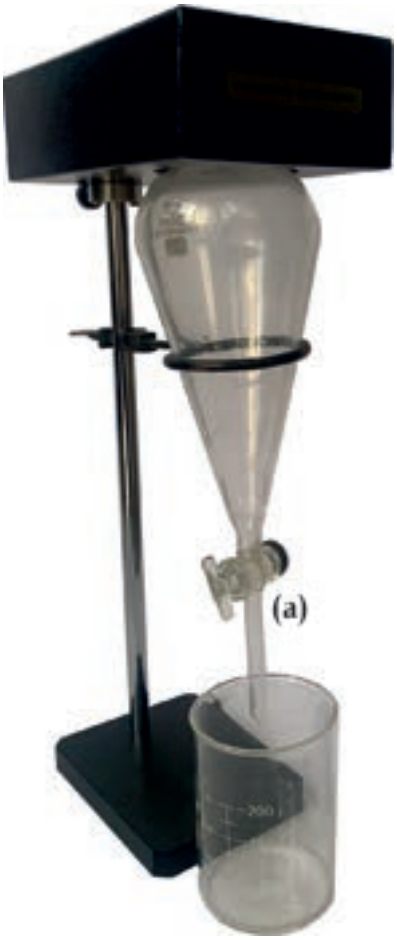
Reference : Lab Experiments Journal vol-12, No.1, Page-55

Experiment setup consists:

a) Helmholtz resonator on stand

b) Digital tuning fork

c) Relative sound intensity meter and stand



(a)

(b)

(c)

Specifications:

a) Helmholtz resonator on stand
Speaker and microphone arrangement directed into container
Frequency response: 20 Hz to 16 KHz
Volume: 250 ml

b) Digital tuning fork
Alternate to manual tunning fork,
Frequency: Variable
Amplitude: Fixed
Output: fed to speaker, up to 85 dB
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: <30 W

c) Relative sound intensity meter
Input: From the microphone
Built-in amplifier for conditioning microphone current
Output: Display of relative sound intensity

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Experiment(s):

1. Determination of velocity of sound

(For more details, procedure & manual visit: www.kamaljeeth.net)

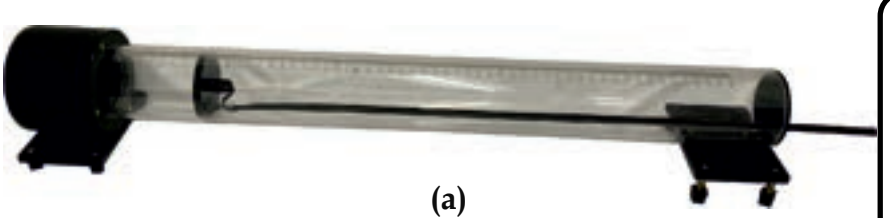
Reference : Lab Experiments Journal vol-13, No.1, Page-44

Experiment setup consists:

a) Kuntz tube on base

b) Digital tuning fork

c) Relative sound intensity meter



(a)

(b)

(c)

Specifications:

a) Kuntz tube on base
Fixed Speaker and variable resonating column with microphone arrangement
Speaker and microphone frequency response: 20 Hz to 16 KHz
Tube length: 55 cm

b) Digital tuning fork
Alternate to manual tunning fork,
Frequency: Variable
Amplitude: Fixed
Output: fed to speaker, up to 85dB
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: <30 W

c) Relative sound intensity meter
Input: From the microphone
Built-in Amplifier for conditioning microphone current
Output: Display of relative sound intensity

Model: MEL-201/202

MELDE's APPARATUS

Experiment(s):

1. Verification of law of stretched string

2. Determination of frequency of AC mains

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-15, No.3, Page-195

Experiment setup consists:

a) Melde's tunning fork

b) Melde's power supply

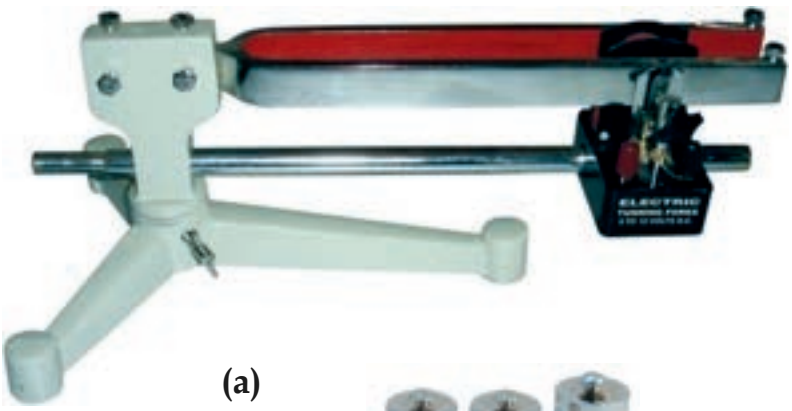
c) Digital balance (Optional)

Specifications:

a) Melde's tunning fork
Fork length: 300 mm
Positions: Vertical & horizontal
Weight set: 2x10 g, 4x5 g
Accessories: Pan and string (included)
Electromagnet: Fixed to rod, Works from 5 V to 9 V @ 2A
Pulley & stand: Height adjustable with table clamp

b) Melde's power supply
Power supply: Mains operated
Voltage: 6 V
Max Current: 2 A
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power Consumption: <40 W

c) Digital balance (Optional)
Pocket type
Power: Battery operated
Max. weight: 200 g
Resolution: 0.01 g



(a)

(b)

(c)

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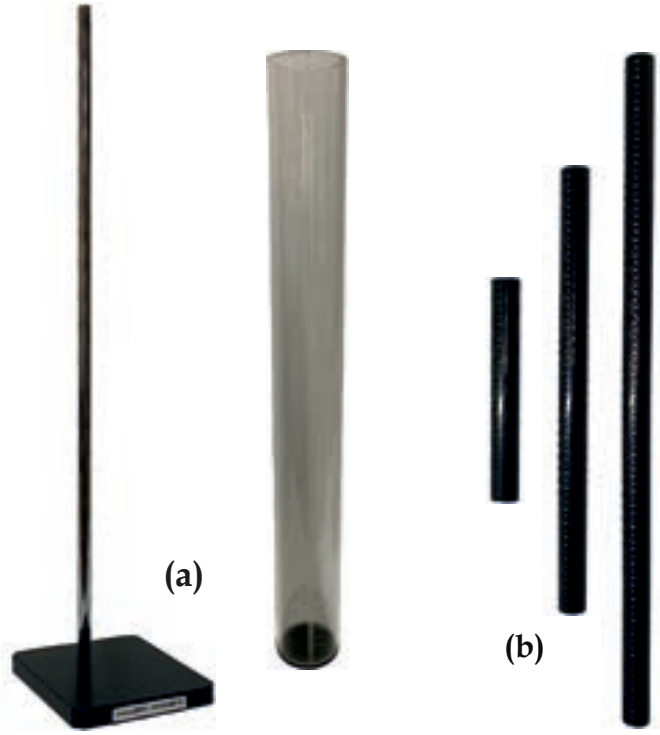
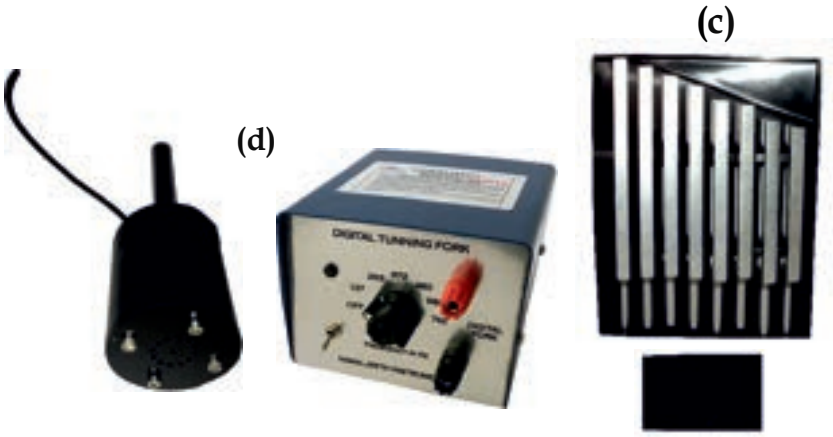
Experiment(s):

1. Determination of velocity of sound in air

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Laboratory manual in Physics I-PUC by Sharmista Sahu, Page -31





Experiment setup consists:

a) Resonance column jar and stand

b) Resonance column tube set

c) Tunning fork

d) Digital tunning fork

Specifications:

a) Resonance column jar and stand
Stand: Heavy cast iron base with boss head and clamp
Jar: Acrylic
Length: 600 mm

b) Resonance column tube set
Set of 3 tubes of length 300 mm, 600 mm and 900 mm
Material: Aluminium

c) Tunning fork
Calibrated aluminium tunning fork with rubber pad, set of 8
Rubber pad: Included

d) Digital tunning fork
Alternate to manual tunning fork, adjustable frequency and fixed amplitude
Audible up to 85 dB
Rated Input: 220 V/50 Hz
or 110 V/60 Hz

Model: ACS-203/204

SONOMETER

Experiment(s):

1. Determination of frequency of the AC mains
2. Verification of the law of vibration of stretched string

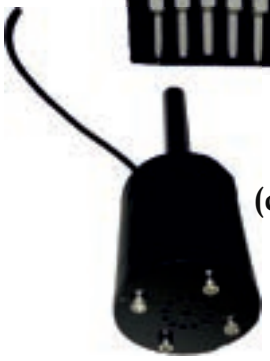
(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-12, No.2, Page-136
Lab Experiments Journal vol-14, No.4, Page-288

(a)

(c)

(b)



(d)

Large Amplitude

(e)

Experiment setup consists:

a) Sonometer
b) Weight set
c) Tunning fork
d) Digital tunning fork
e) Electromagnet, power supply and stand

Specifications:

a) Sonometer
Length: 500 mm
Material: Steel
Knife Edge: Steel

b) Weight set
Slotted weight: 5 x 50 g

c) Tunning fork
Calibrated aluminium tunning fork with rubber pad, set of 8

d) Digital tunning fork
Alternate to manual tunning fork, adjustable frequency and fixed amplitude
Audible up to 85 dB

e) Electromagnet, power supply and stand
Electromagnet: Copper coil wound on iron solenoid,
Resistance 4 Ω
Power Supply: 6 V/3 A with 4mm Banana pins
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Mains cord: 2 pin
Stand: Height adjustable

SPEAKER AND MICROPHONE CHARACTERISTICS

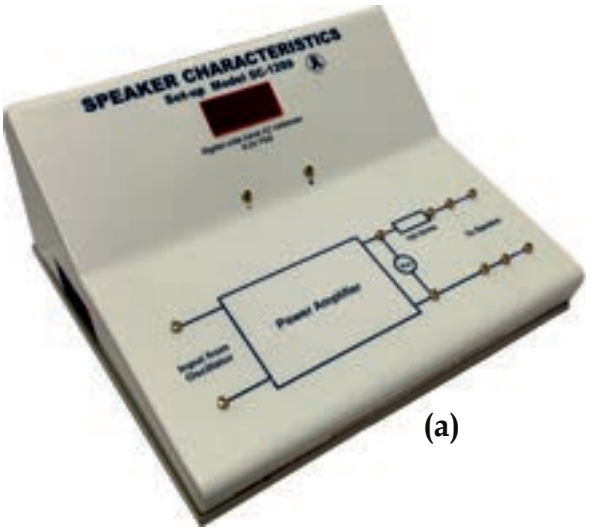
Model: SMC-1209/205

Experiment(s):

1. Determination of speaker characteristics like frequency response, sensitivity, audible range, bandwidth, coil resistance, inductance, etc

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-12, No.1, Page-42



(a)

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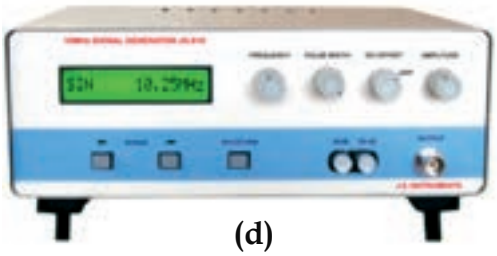
(b)



(d)

Experiment setup consists:

a) Speaker characteristics kit
b) Sound intensity meter
c) Speaker set
d) Signal generator

Specifications:

a) Speaker characteristics kit
Input: From signal generator
Voltmeter: Wide band (200 KHz) AC voltmeter
Range: 0 - 2 V
Resolution: 0.001 V
Built-in power amplifier capable of powering up to 4 Ω speaker
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: <30 W
Connectors: 2 mm - 2 mm moulded brass pin patch cords

b) Sound intensity meter
Measures upto 130 dB

c) Speaker Set
Consist of 3 speakers - woofer, mid-range and tweeter

d) Signal generator
Frequency: 1 Hz to 1 MHz
Display: Frequency & waveform
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power Consumption: <30 W
Amplitude: 0 to 20 V variable
Waveforms: Sine, square and triangular

SOUND

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CLASIUS-CLAPEYRON ENTHALPY

Experiment(s):

1. Verification of Clasius-Clapeyron equation
2. Determination of specific enthalpy

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-11, No.3, Page-194

(a)

(b)

Experiment setup consists:

a) Pressure vessel

b) Heater

c) Thermometer

Specifications:

a) Pressure vessel
Pressure cooker with pressure gauge and provision for thermometer
Max pressure: 2 bar
Safety valve: Yes
Capacity: 3 L
Maximum pressure: 2 bar

b) Heater
Hot plate: Flat coil heater
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power: 1.5 KW

c) Thermometer
Type: Digital, Probe type
Range: 300 °C
Resolution: 0.1 °C

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Experiment(s):

1. Determination of thermal conductivity of a given sample

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-14, No.3, Page-208

Experiment setup consists:

a) Thermal conductivity sample and temperature sensor

b) Digital multi stem thermometer with clock

(a)

(b)

Specifications:

a) Thermal conductivity sample and temperature sensor
Rod material: Iron
(Also customizable for Aluminium, Copper & Brass)
Rod uniform cross section: 12 mm
Rod Length: 350 mm
Heater: Ceramic type, 35 W
Max temperature: 125 °C
Sensors: 6 probes at 50 mm interval
Resolution: 1 °C
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power Consumption: <60 W

b) Digital multi stem thermometer with clock
Sensor inputs: 6
Clock: 0-9999 sec,
Clock readout: Always displayed in sec
Reset: Independent of temperature sensor probe
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Probe heater: Built-in, heating capacity up to 35 W

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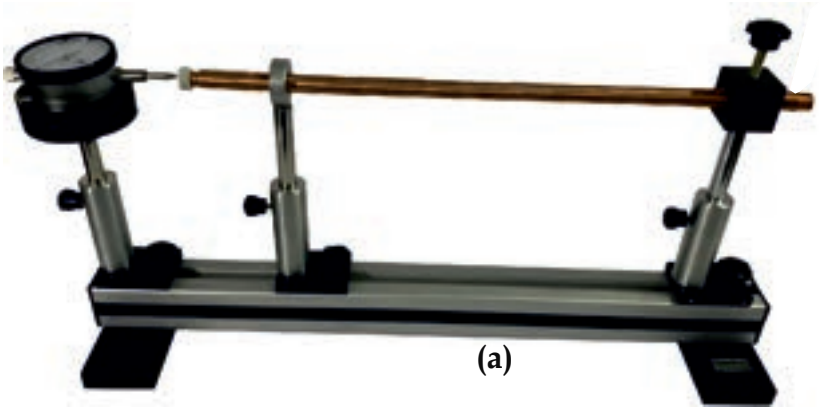
LINEAR EXPANSION IN METALS

Experiment(s):

1. Determination of co-efficient of linear expansion of metal

(For more details, procedure & manual visit: www.kamaljeeth.net)



(a)

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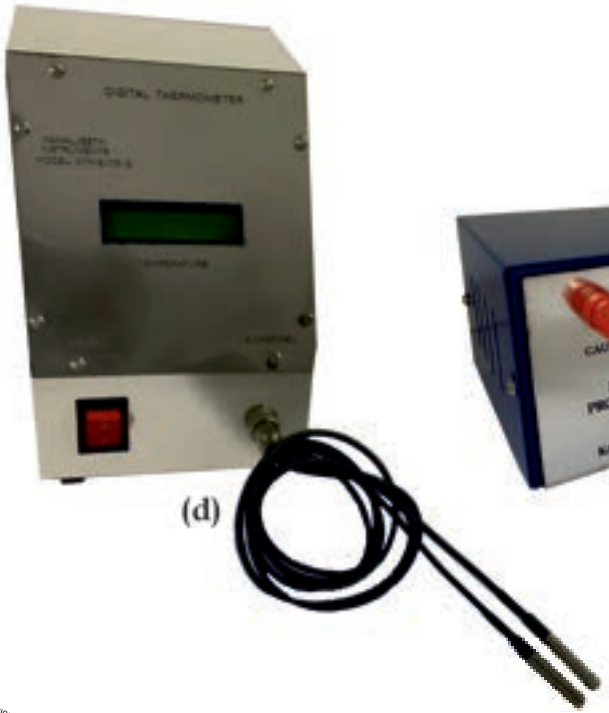

(d)

(c)

Experiment setup consists:

a) Test stand
b) Sample rods
c) Heater
d) 2 channel thermometer

Specifications:

a) Test stand
Slidable uprights (2 nos) on a rigid aluminium stand
Height adjustable uprights to fix sample rods
Dial type micrometer to measure linear expansion
Heating: Ceramic probe type heating, 35 W heater

b) Sample rods
Copper: Length 400 mm
Brass: Length 400 mm
Aluminium: Length 400 mm
Iron: Length 400 mm

c) Heater
Probe heating power supply
Output: 35 W
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power Consumption: <60 W

d) Thermometer
Type: 2 Channels
Display: LCD
Range: 200 °C
Resolution: 0.1 °C

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Experiment(s):

1. Verification of Newton's law of cooling

(For more details, procedure & manual visit: www.kamaljeeth.net)

Experiment setup consists:

a) Copper calorimeter insulated by acrylic
b) Digital stop clock
c) Digital thermometer
d) Electric kettle
e) Digital balance (optional)

(a)

(b)

(e)

(d)

Specifications:

a) Copper calorimeter
Copper vessel insulated on all sides
Stirrer: Manual

b) Digital stop clock
Range: 0-999.9 sec
Resolution: 0.1 sec
Time measuring: Manual start/stop
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: <20 W

c) Thermometer
Type: Digital, probe type
Range: 300 °C
Resolution: 0.1 °C

d) Heating kettle
Electric kettle for boiling water
Max. temperature: 100 °C
Capacity: 500 ml

e) Digital Balance (Optional)
Pocket type
Power: Battery operated
Max Weight: 200 g
Resolution: 0.01 g

Model: PSE-1708/304

PELTIER & SEEBECK EFFECT

Experiment(s):

1. Study of Peltier effect and Seebeck effect

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-14, No.3, Page-217

Experiment setup consists:

a) Peltier & Seebeck effect kit

b) Peltier module

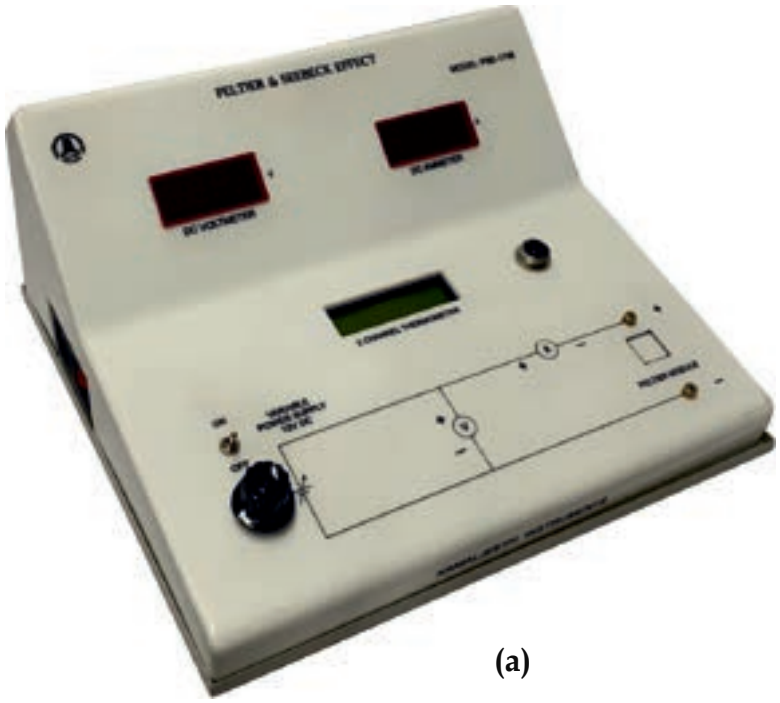
c) Thermocouple (2 nos)

Specifications:

a) Peltier & Seebeck effect kit
DC ammeter: 0-20 A
Resolution: 0.01 A
Voltmeter: 0-20 V
Resolution: 0.01 V
Power supply: Variable 0 -12 V, Regulated output
Thermometer: 2 channel
0-150 °C,
Resolution: 1 °C
Thermometer: Socket for Digital Probe thermocouple
Rated Input: 220 V/50 Hz
or 110 V/60 Hz

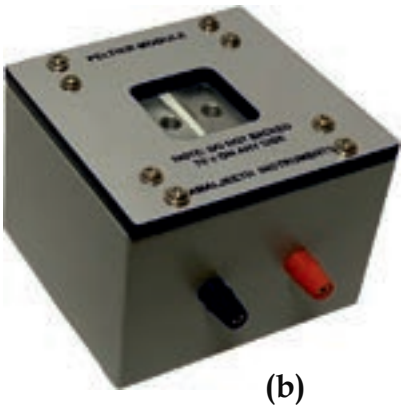
b) Peltier module
Module maximum power: 25 W
Heat-sink: 2 nos
(on hot and cold sides)
Max temperature difference: 40 °C
Temperature sensor: 2 nos mounting on heat sinks

c) Thermocouple
Type Probe type thermocouple



(a)

(c)



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Experiment(s):

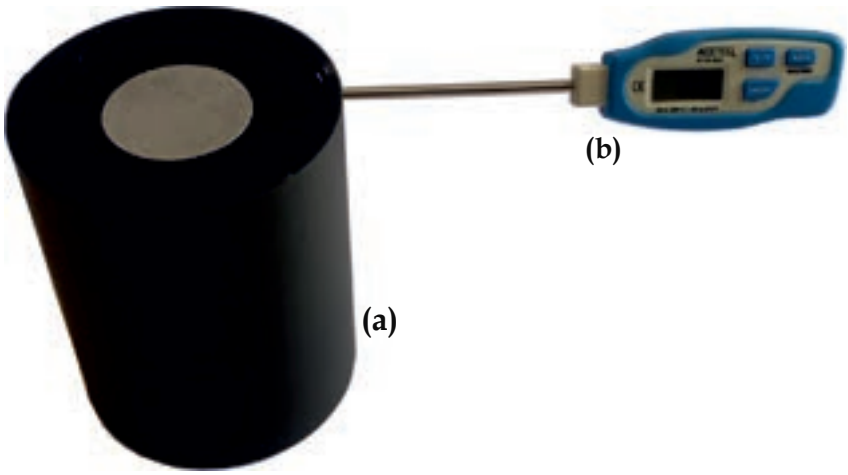
1. Determination of Solar constant

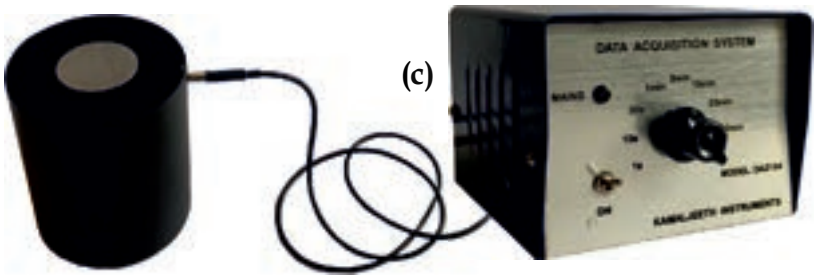
(For more details, procedure & manual visit: www.kamaljeeth.net)

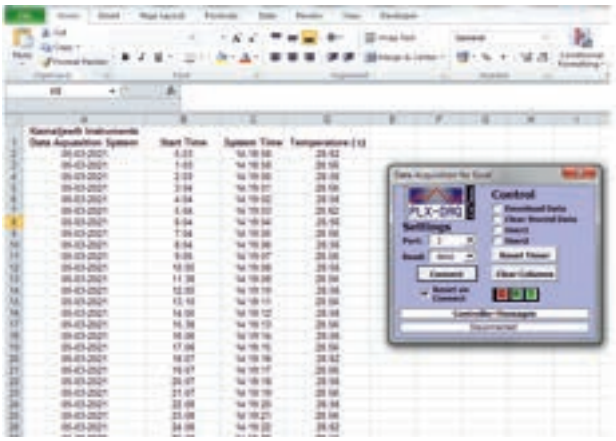
Reference : Lab Experiments Journal vol-14, No.4, Page-294

Experiment setup consists:

a) Aluminium rod arrangement with specific surface exposed
b) Digital thermometer
c) Temperature data acquisition system







Specifications:

a) Aluminium rod arrangement with specific surface exposed
Aluminium rod insulated on sides except on surface

b) Thermometer
Type: Digital, probe type
Range: 300 °C
Resolution: 0.1 °C

c) Temperature data acquisition system (data logger)
No. of channels: One
Sensor: Thermometer probe
Temperature logging interval: Selectable form 1 sec to 30 mins
Software: Provided with PLX-DAQ software
Software capabilities: Acquires date and time from system and logs corresponding temperatures at set interval
Interface: USB
Output: Logs directly to M S Excel
Power requirement:
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power Consumption: <20 W

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Model: SH-201/306

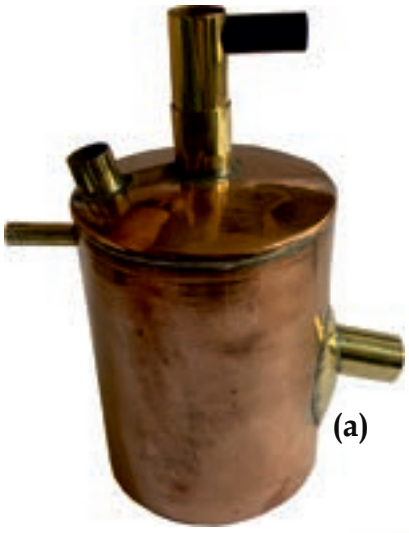
SPECIFIC HEAT OF SOLIDS

Experiment(s):

1. Determine the specific heat of solids

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Laboratory manual in Physics I-PUC by Sharmista Sahu, 1998, Page -28



(a)

(b)

(c)

(e)

(d)

Experiment setup consists:

a) Regnault's apparatus
b) Digital stop clock
c) Steam generator
d) Digital thermometer
e) Digital balance (optional)

Specifications:

a) Regnault's apparatus
Copper chamber with steam inlet and outlet
Provision for thermometer: Yes

b) Digital stop clock
Range: 0-999.9 sec
Resolution: 0.1 sec
Time Measuring: Manual start/stop
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: <20 W

c) Steam generator with heater
Capacity: 1.5 L
Output: Approx. 1 L/hr
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power Consumption: <1000 W
Socket: 5 A, 3 Pin mains cord
Rubber tube: 6 mm, 1 m length

d) Thermometer
Type: Digital, Probe type
Range: 300 °C
Resolution: 0.1 °C

e) Digital balance (Optional):
Pocket type
Power: Battery operated
Max Weight: 200 g
Resolution: 0.01 g

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Experiment(s):

1. Determine the specific heat of liquids

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-11, No.1, Page-24

Experiment setup consists:

a) Bulb/Joule's calorimeter
b) Digital stop clock
c) Battery eliminator
d) Digital current meter

Specifications:

a) Bulb/Joule's calorimeter
Container: Copper vessel insulated on all sides
Bulb: Tungsten filament bulb painted in thick black heat resistant paint
Stirrer: Built in electric motor

b) Digital stop clock
Range: 0-999.9 sec
Resolution: 0.1 sec
Time measuring: Manual start/stop
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: <20 W

c) Battery eliminator
Output: Regulated DC output
Voltage: Selectable (1.2, 2, 4, 6, 8, 10, 12 V)
Max Current: 2 A
Key: Built in switch
Rated Input: 220 V/50 Hz
or 110 V/60 Hz

d) Digital current meter
Range: 0 - 2 A
Resolution: 0.001 A
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: <20 W
Cabinet: Acrylic body, aluminium bottom

(b)

(a)

(d)

(c)

HEAT

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Model: TCN-201/308

THERMAL CONDUCTIVITY BY LEES & CHARTON's METHOD

Experiment(s):

1. Determination of thermal conductivity of bad conductors by Lees & Charton's method

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Pragathi Practical Physics, Page-27

Experiment setup consists:

a) Less discs on stand

b) Steam generator with heater

c) Digital thermometer (optional)

Specifications:

a) Less discs on stand
Lees discs made of brass with provision for insulator and thermometer
Free hung type arrangement
Samples: Cardboard of different thickness and glass

b) Steam Generator with heater
Capacity: 1.5 L
Output: Approx. 1 L/hr
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power Consumption: <1000 W
Socket: 5 A, 3 Pin mains cord
Rubber tube: 6 mm, 1 m length

c) Digital Thermometer (optional)
Quantity: 2 nos
Probe: Extendable
Temperature: -40 °C to 320 °C
Power: Battery operated

(b)

(c)

(a)

THERMAL CONDUCTIVITY OF RUBBER

Model: TCR-201/309

Experiment(s):

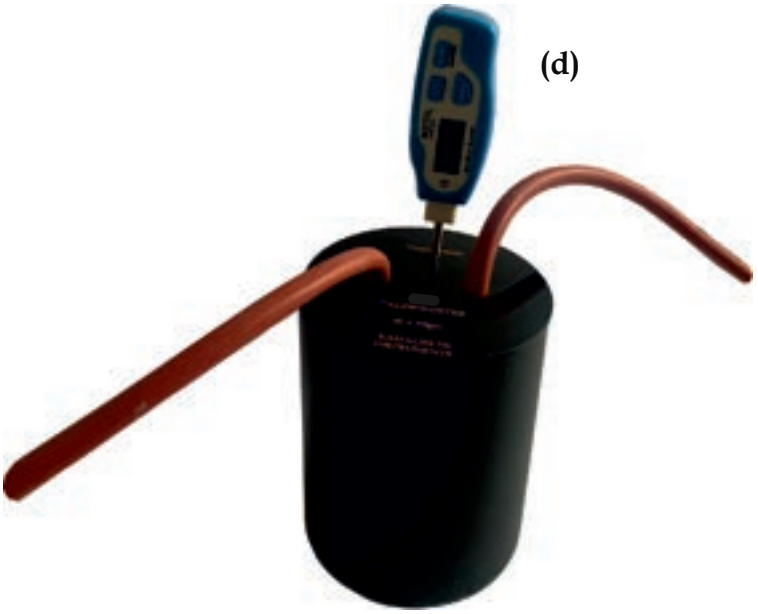
1. Determination of thermal conductivity of rubber

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-15, No.2, Page-94

Experiment setup consists:

a) Calorimeter
b) Digital stop clock
c) Steam generator with heater
d) Thermometer



(d)

(a)

(c)

(b)

Specifications:

a) Calorimeter
Calorimeter with inserts for rubber tube and thermometer
Vessel: Copper container of known mass

b) Digital stop clock
Range: 0-999.9 sec
Resolution: 0.1 sec
Time Measuring: Manual start/stop
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: <20 W

c) Steam generator with heater
Capacity: 1.5 L
Output: Approx. 1 L/hr
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: <1000 W
Socket: 5 A, 3 Pin mains cord
Rubber tube: 6 mm, 1 m length

d) Thermometer
Type: Digital, probe type
Range: 300 °C
Resolution: 0.1 °C

HEAT

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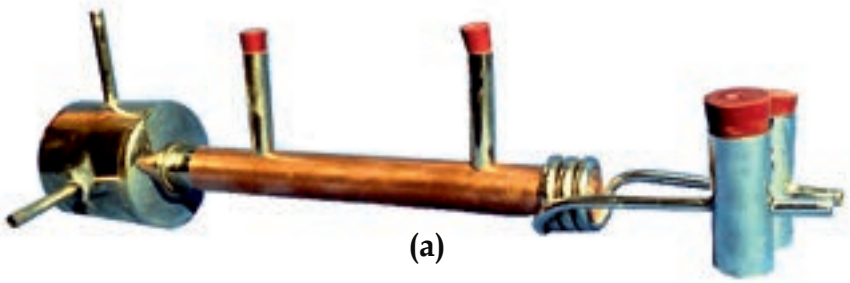
Model: TCM-201/310

THERMAL CONDUCTIVITY BY SEARLE's METHOD

Experiment(s):

1. Determination of thermal conductivity of copper (metals) by Searle's Method

(For more details, procedure & manual visit: www.kamaljeeth.net)



(a)

(b)

(c)

(d)

Specifications:

a) Searle's apparatus
Solid copper rod with inserts for thermometers
Steam chamber with inlet and drain pipes
Water in and water out hose
Enclosed in insulated wooden chamber

b) Steam generator with heater
Capacity: 1.5 L
Output: Approx. 1 L/hr
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power Consumption: <1000 W
Socket: 5 A, 3 Pin mains cord
Rubber tube: 6 mm, 1 m length

c) Digital stop clock
Range: 0-999.9 sec
Resolution: 0.1 sec
Time measuring: Manual start/stop
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: <20 W

d) Thermometers (2 nos)
Type: Digital, probe type
Range: 300 °C
Resolution: 0.1 °C

Experiment(s):

1. Determination of temperature, sensitivity of thermocouple & calibration

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-7, No.3, Page-171

Experiment setup consists:

a) Thermo EMF amplifier

b) Reference thermometer

c) Electrical kettle

Specifications:

a) Thermo couple amplifier
Amplifier: K-type thermo couple or J-type thermo couple
Millivoltmeter: Digital milli-voltmeter 0 - 200 mV
Resolution: 0.1 mV

b) Heating source
Electric kettle for boiling water
Max. temperature: 100 °C
Capacity: 500 ml

c) Reference thermometer
Digital thermometer
Probe: Extendable
Temperature: -40°c to 320°c

(a)

(b) (c)

Model: TFR-1101/312

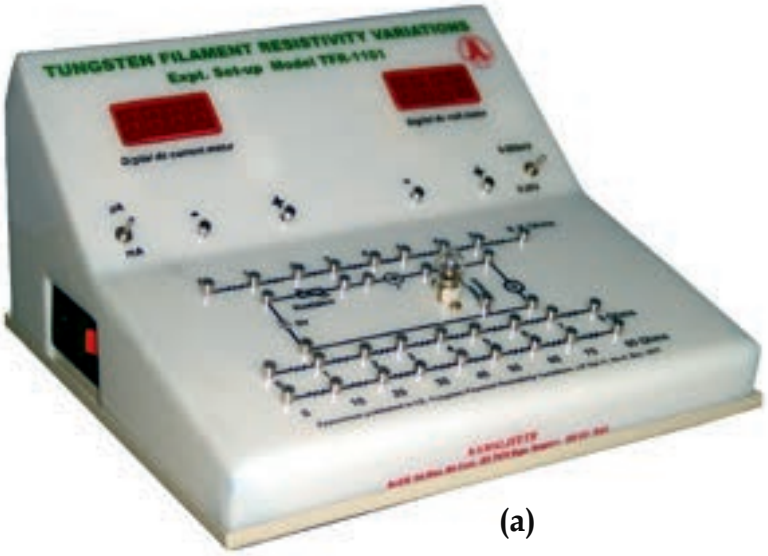
TUNGSTEN FILAMENT TEMPERATURE & RESISTIVITY

Experiment(s):

1. Estimation of filament temperature by the resistivity variation study

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-11, No.4, Page-301



(a)

(b)

Experiment setup consists:

a) Tungsten filament resistivity kit

b) Set of patch cords

Specifications:

a) Tungsten filament resistivity kit
Voltmeter:
Digital DC 3½ digit voltmeter
Range: Selectable 0 - 200 mV or
0 - 20 V
Resolution: 0.1 mV or 0.01 V
Current meter:
Digital DC 3½ digit
Range: Selectable 200 mA or 200 µA
Resolution: 0.1 mA or 0.1 µA
Internally connected circuit with provision for changing load resistance
Load resistance: Selectable from 1 Ω to 80 Ω
Sample: Tungsten Filament bulb
Power supply: Regulated 5 V DC fixed voltage power supply
Rated Input: 220 V/50 Hz
or 110 V/60 Hz

b) Patch cords
Set of standard 2 mm patch cords of different lengths with spare cords

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Experiment(s):

1. Determination of acceleration due to gravity
2. Verify Newton's II law of motion

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-11, No.2, Page-124

Experiment setup consists:

a) Atwood machine

b) Time interval clock

c) Electromagnet & weights

Specifications:

a) Atwood machine
Length: 1.5 m
Pulley: Wheel mounted on low resistance free rolling bearing
Number of sensors: 2
Position adjustment for sensor: Yes
Levelling screw for base: Yes

b) Time interval clock
Range: 0-999.9 sec
Resolution: 0.1 sec
Time measuring: Based on inputs from start sensor and stop sensor
Reset: Automatically on interrupting start sensor
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: <50 W

c) Electromagnet & weights
Electromagnet for release of weights from still
Balancing weights: Slotted weights tied end-to-end, pair of 5x50 g

(b)

(c)

(a)

MECHANICS

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Model: BP-201/402

BAR / COMPOUND PENDULUM

Experiment(s):

1. Determination of acceleration due to gravity

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-11, No.2, Page-124

(c)

(b)

(a)

Experiment setup consists:

a) Bar/Compound pendulum

b) Oscillation counter

c) Digital stop clock

Specifications:

a) Bar/Compound pendulum
Type: Desktop version
Length: 600 mm
Number of holes: 11
Material: Aluminium
Fulcrum: Suitable for all holes
Pitch: 50 mm
Stand: Heavy cast iron base with grooved rod

b) Oscillation counter
Range: 0-999.999 sec
Resolution: 0.001 sec
Time Measuring: Based on input from single start/stop sensor
Reset: Manual
Counts number of oscillation and time period for the oscillation

OR

c) Digital stop clock
Range: 0-999.9 sec
Resolution: 0.1 sec
Time measuring: Manual start/stop
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: <20 W

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Experiment(s):

1. Verification of conservation of energy

(For more details, procedure & manual visit: www.kamaljeeth.net)

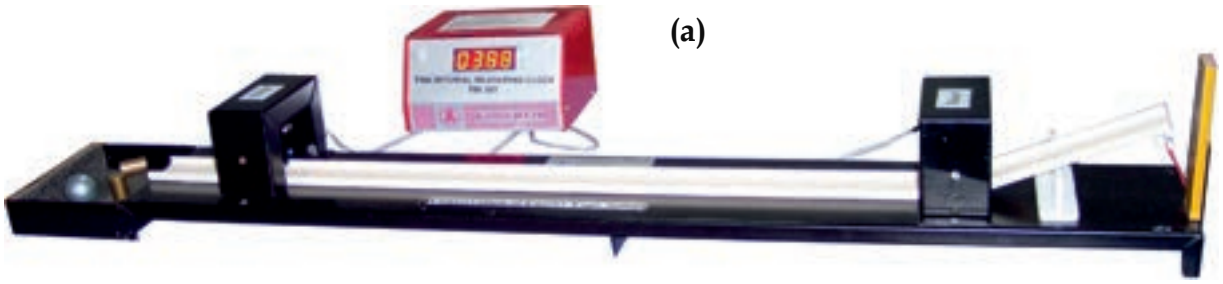
Reference : Lab Experiments Journal vol-4, No.3, Page-227

Experiment setup consists:

a) Rolling bed

b) Time interval clock

(a)



(b)

Specifications:

a) Rolling bed
Length: 500 mm
Height: Adjustable up to 100 mm
Sensors: Start and stop (2 nos)
Sensor position: Fixed
Objects: Sphere, solid cylinder, hollow cylinder (3 nos)

b) Time interval clock
Range: 0-999.9 sec
Resolution: 0.1 sec
Time measuring: Based on inputs from start sensor and stop sensor
Reset: Automatically on interrupting start sensor
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: <30 W

MECHANICS

COUPLED OSCILLATOR

Experiment(s):

1. Determination the period of normal mode
2. Determine the frequency of energy transfer and beat frequency

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal

(a)

(b)

Experiment setup consists:

a) Coupled oscillator

b) Digital stop clock

Specifications:

a) Coupled oscillator
Bob: Brass (2 nos) of diameter 25 mm
Length: Adjustable
Stand: Rigid cast iron

b) Digital stop clock
Range: 0-999.9 sec
Resolution: 0.1 sec
Time measuring: Manual start/stop
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: <20 W

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Experiment(s):

1. Determination of pole strength of a magnet

2. Dipole moment of the magnet

(For more details, procedure & manual visit: www.kamaljeeth.net)

Experiment setup consists:

a) Deflection magnetometer

b) Compass

c) Bar magnet pair

(a)

(b)

(c)

Specifications:

a) Deflection magnetometer
Length: 40 cm on either sides from centre
Material: Acrylic
Track for bar magnet: Yes, 12.5 mm width

b) Compass
Size: 100 mm diameter
Mirror for reduced parallax error
Graduation: 1°

c) Bar magnet pair
Length: 50 mm each
width: 12 mm
Material: AlNiCo

FREE FALL APPARATUS

Experiment(s):

1. Determination of acceleration due to gravity

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Reference : Lab Experiments Journal vol-4, No.2, Page-165

Experiment setup consists:

a) Free fall stand

b) Time interval clock

c) Objects

(a)

(c)

(b)

Specifications:

a) Free fall stand
Length: 1100 mm
Object release mechanism: Electromagnetic
Number of sensors: 2
Position adjustment for sensor: Yes
Levelling screw for base: Yes
Distance measurement: manual

b) Time interval clock
Range: 0-999.9 sec
Resolution: 0.1 sec
Time measuring: Based on inputs from start sensor and stop sensor
Reset: Automatically on interrupting start sensor
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: <50 W

c) Object
Spheres (2 nos) of dia 20 mm

MECHANICS

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GALTON BOARD
(MONTE CARLO) EXPERIMENT

Model: DB-201/407

Experiment(s):

1. Verification of central limit theorem (CELT) & Normal (Gaussian) distribution

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-10, No.1, Page-23

(a)

(b)

Experiment setup consists:

a) Galton board

b) Marble set

Specifications:

a) Galton board

Number of slots: 9
Board material: Wood + Acrylic

b) Marble set

Number of marbles: 100
Diameter: 12 mm

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KATER's PENDULUM

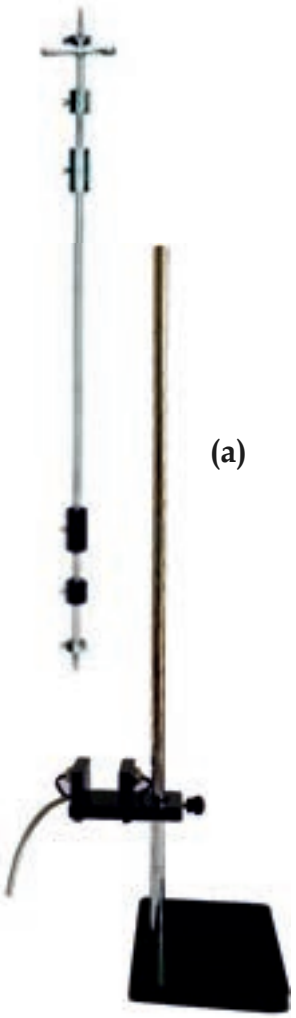
Experiment(s):

1. Determination of acceleration due to gravity

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal, Kamaljeeth write-up

(b)



(a)

Experiment setup consists:

a) Kater's pendulum

b) Oscillation counter with height adjustable sensor

Specifications:

a) Kater's pendulum
Rod material: Iron
Rod uniform cross section: 12 mm
Rod length: 1000 mm
Balancing weights: 2 nos
Clamp: Wall mount type

b) Digital oscillation counter
Sensor type: Photo detector based
Max. time: 999.999 sec
Resolution: 0.001 sec
Oscillations: up to 200
Timer will auto start after 1 trail oscillation
Reset: Yes
Rated Input: 220 V/50 Hz
or 110 V/60 Hz

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LAMI's THEOREM (GRAVESAND's APPARATUS)

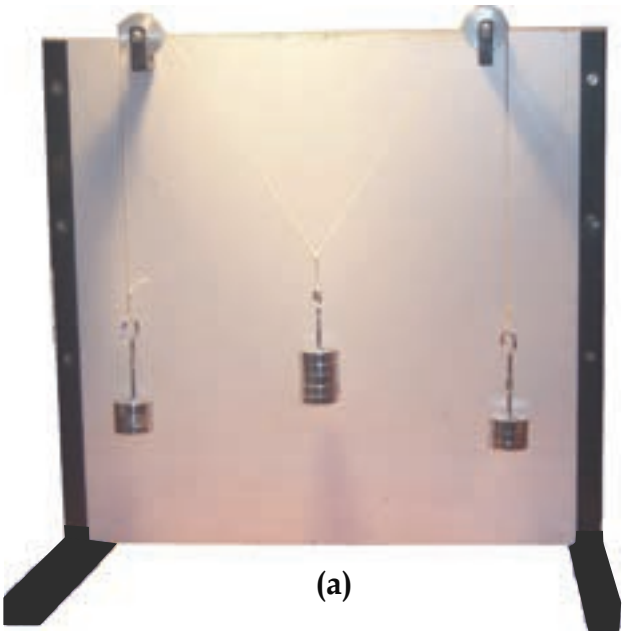
Model: LT-201/409

Experiment(s):

1. Verification of Law of parallelogram force, converse of triangular forces, Lami's theorem

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal for pre-university



(a)

(b)

Experiment setup consists:

a) Gravesand apparatus with weight Set

b) LED table lamp

Specifications:

a) Gravesand apparatus

Board: Wooden with metal base
Pulley: Z-pullies (2 nos) with adjustable distance
Weight set: 5x50 g (3 sets)

b) Illumination: Table lamp (optional)
LED lamp with rechargeable battery and USB charger

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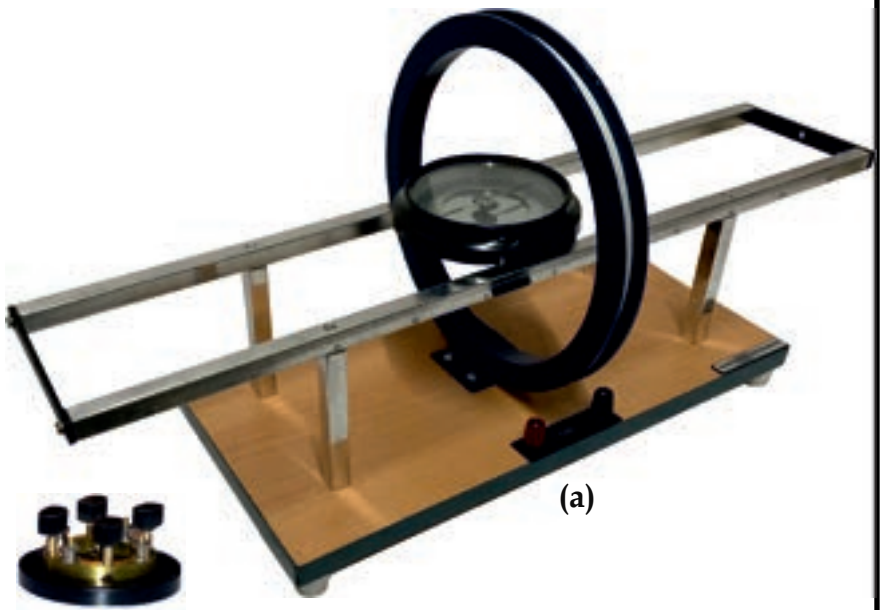
MAGNETIC FIELD ALONG THE AXIS OF THE COIL

Experiment(s):

1. Determination of Magnetic field along the axis of the coil

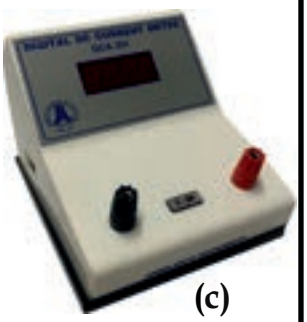
(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-12, No.3, Page-179

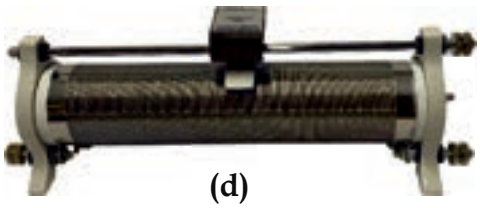


(a)

(b)



(c)



(d)

Specifications:

a) Circular coil apparatus
Coil on board arrangement
Coil turns: 140
Material: 99% Pure copper
Slider: 50 cm
Compass: 4 inch with mirror under needle to reduce error
Coil diameter: 180 mm
Commutator: 4 key type

b) Regulated battery eliminator
Output: Regulated DC output
Voltage: Selectable (1.2, 2, 4, 6, 8, 10, 12V)
Max current: 2 A
Key: Built in switch

c) Digital ammeter
Range: 0-2 A
Resolution: 0.01 A
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: <20 W
Cabinet: Acrylic body, aluminium bottom

d) Rheostat and connecting wire
Tube Length: 300 mm
Contact: Spring loaded Copper blades
Resistance wire: Nichrome
Terminals: 3 (X-0-Y)
Max. current: 2 A
Max. resistance: 100 Ω

MAGNETIC FIELD ALONG THE AXIS OF HELMHOLTZ COILS

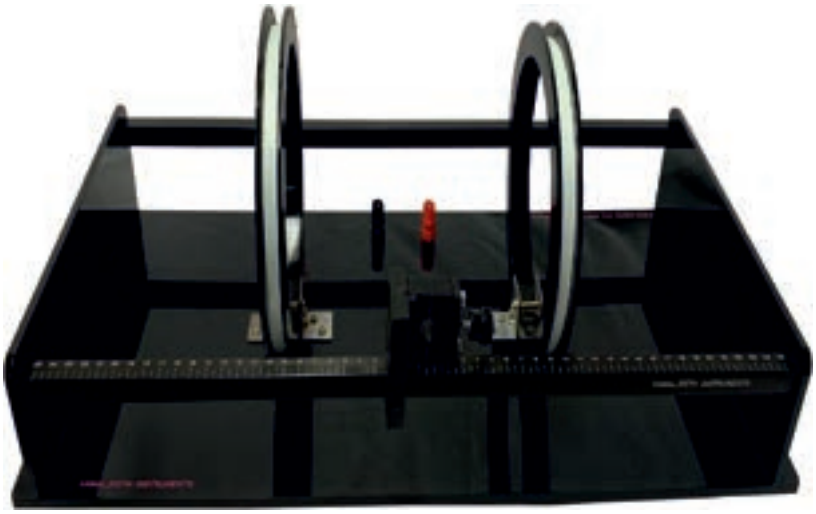
Model: SG-201/411

Experiment(s):

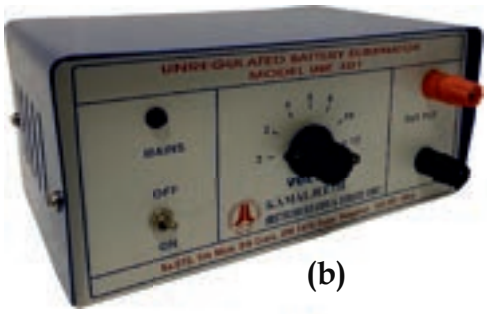
1. Determination of magnetic field along the axis of pair of Helmholtz coils

2. Study of principle of super imposition of magnetic fields

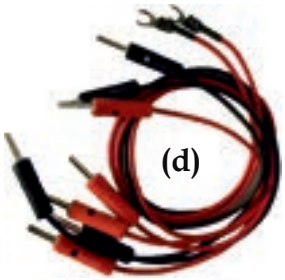
(For more details, procedure & manual visit: www.kamaljeeth.net)



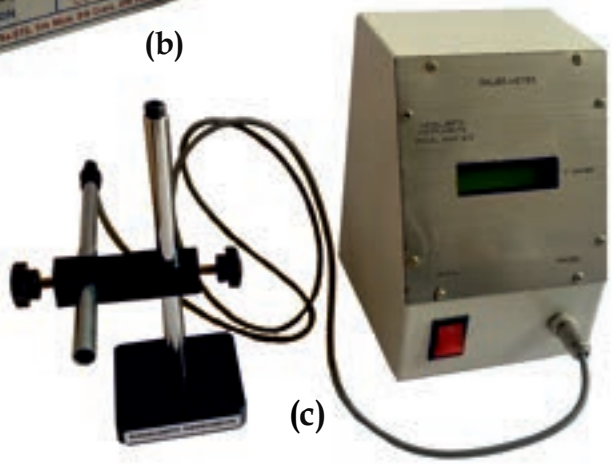
(a)



(b)



(d)



(c)

Experiment setup consists:

a) Helmholtz coil apparatus
b) AC power supply
c) Digital Gauss meter
d) Connecting wires

Specifications:

a) Helmholtz coil apparatus
Coil on board arrangement
Number of coils: 2
Coil turns: 150 each
Material: 99% Pure copper
Slider: 50 cm
Coil diameter: 180 mm

b) AC power supply
Output: AC output
Voltage: Selectable
(1.2, 2, 4, 6, 8, 10, 12V)
Max. current: 2 A
Key: Built in switch
Rated Input: 220 V/50 Hz
or 110 V/60 Hz

c) Gauss meter
Measures magnetic flux up to 20K Gauss
Resolution: 0.1K Gauss
Detachable gauss probe with stand
Rated Input: 220 V/50 Hz
or 110 V/60 Hz

d) Connecting wires
4 mm - 4 mm banana pin wires of length 50 cm each

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Model: RMD-201/412

MAXWELL's NEEDLE APPARATUS

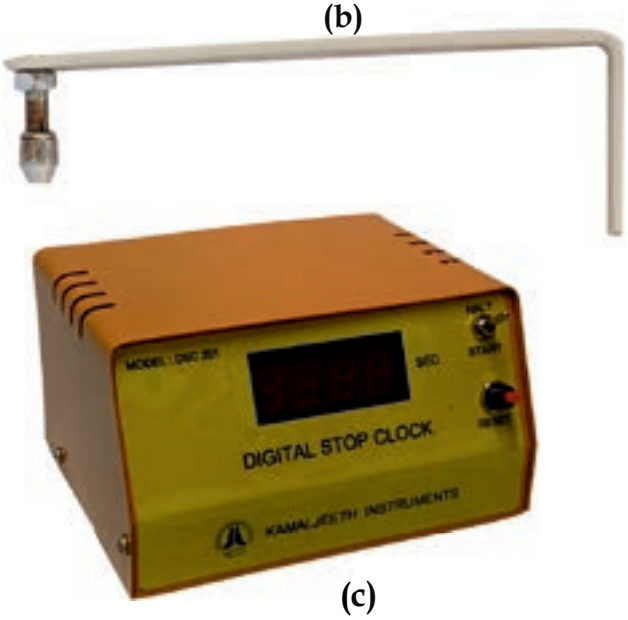
Experiment(s):

1. Determination of rigidity modulus of a wire

(For more details, procedure & manual visit: www.kamaljeeth.net)

(a)

(b)



(c)

Experiment setup consists:

a) Maxwell's needle & sample wire

b) Ceiling cum wall clamp

c) Digital stop clock

Specifications:

a) Maxwell needle
Tube length: 40 cm
Diameter: 18 mm
Material: Steel/Brass
Scale: Graduation on either ends from 0 to 18 cm
Type: Hollow cylinder
Weight set: Solid brass weight set (2 nos) and Hollow brass cylinders
Length: 10 cm each
Mount: Chuck nut mounted on to middle of main hollow tube
Mirror: Mounted to chick nut at exactly centre of the hollow tube

b) Mount
Chuck nut with ceiling hung cum wall fix type

c) Digital stop clock
Range: 0-999.9 sec
Resolution: 0.1 sec
Time measuring: Manual start/stop
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: <30 W

MECHANICS

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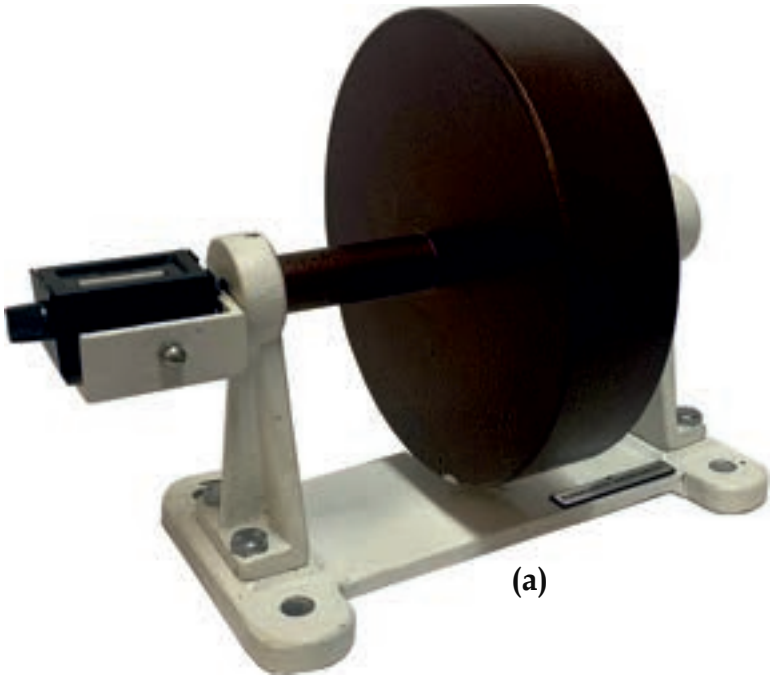
MOMENT OF INERTIA BY FLY WHEEL

Model: MIF-201/413

Experiment(s):

1. Determination of the moment of inertia & mass of the fly wheel

(For more details, procedure & manual visit: www.kamaljeeth.net)



(a)

(b)

Experiment setup consists:

a) Flywheel

b) Digital stop clock

Specifications:

a) Flywheel
Type: Solid flywheel
Support: Mounted on low resistance ball bearing
Mounting: Wall hung
Rotation counter: Mechanical (Optional)
Weight set: 5 x 50 g

b) Digital stop clock
Range: 0-999.9 sec
Resolution: 0.1 sec
Time measuring: Manual start/stop
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: <30 W

MECHANICS

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Model: RMS-201/414

RIGIDITY MODULUS BY STATIC TORSION

Experiment(s):

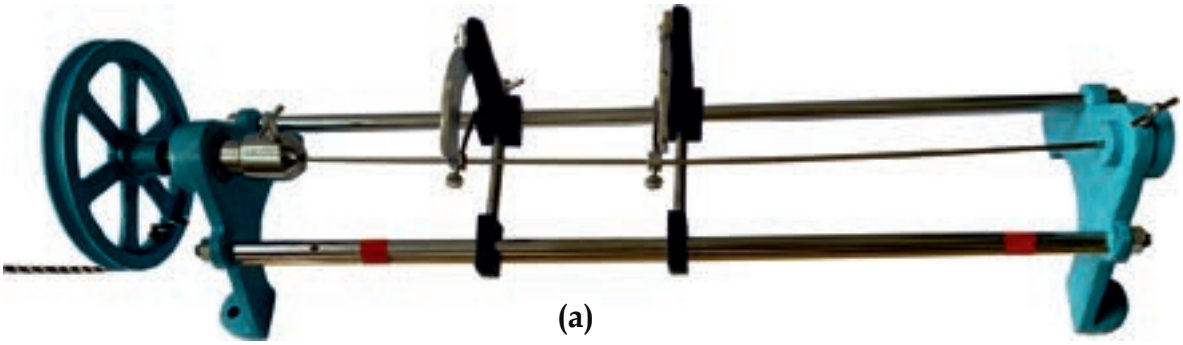
1. Determination of rigidity modulus of the material in the form of rods

(For more details, procedure & manual visit: www.kamaljeeth.net)

Experiment setup consists:

a) Static torsion apparatus

b) Weight set



(a)

(b)

Specifications:

a) Static torsion apparatus
Length: 600 mm
Supporting rods: Graduated in cm
Wheel diameter: 165 mm
Wheel mounted on bearing to reduce friction
Test rod: aprox 550 mm, with 2 pointers to read angel of deflection
Max test rod diameter: up to 6 mm
Circular scale: Graduated in degrees 30° - 0 - 30°
Resolution: 1°
Weight set: hung by cord to wheel

b) Weight
Slotted weight 5 x 500 g

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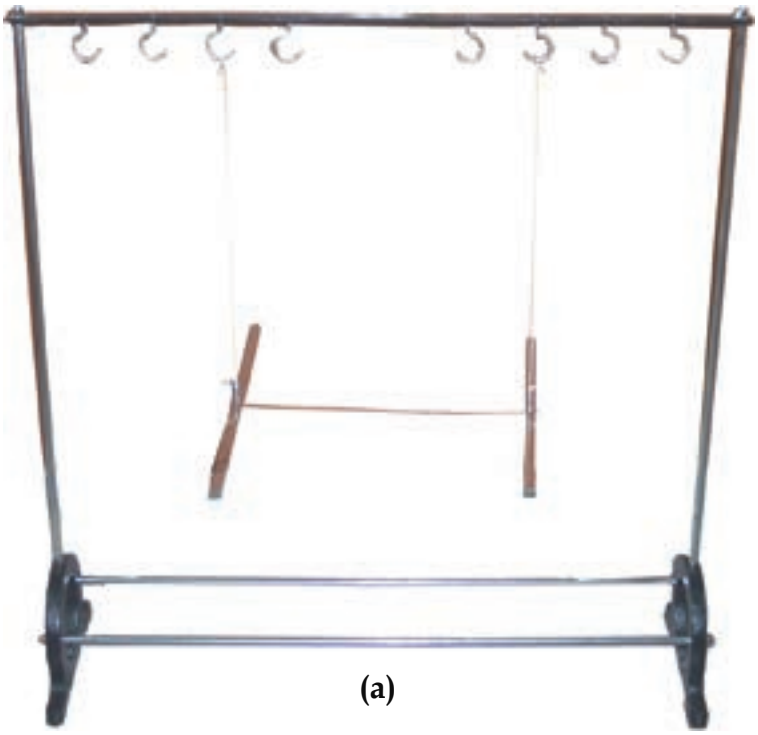
Experiment(s):

1. To determine the elastic constant of Iron

(For more details, procedure & manual visit: www.kamaljeeth.net)



(a)

(b)

Experiment setup consists:

a) Searle's double bar on a stand

b) Digital clock

Specifications:

a) Searle's double bar on a stand
Bar: Solid brass bars (2 nos)
Cross section: Square 10 mm
Length: 150 mm
Stand: Rigid cast iron, 600 mm length with hooks
Sample: Steel wire of different cross-sections

b) Digital stop clock
Range: 0-999.9 sec
Resolution: 0.1 sec
Time measuring: Manual start/stop
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: <30 W

Model: SP-201/416

SIMPLE PENDULUM

Experiment(s):

1. Determination of acceleration due to gravity

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-12, No.2, Page-122

(b)

(c)

(a)

Experiment setup consists:

a) Simple pendulum stand

b) Digital stop clock

c) Oscillation counter (Optional)

Specifications:

a) Simple pendulum stand
Base: Heavy mild steel
Support rod: Stainless steel
Bob: Brass (25 mm)

b) Digital stop clock (Optional)
Range: 0-999.9 sec
Resolution: 0.1 sec
Time measuring: Manual start/stop
Rated Input: 220 V/50 Hz
or 110 V/60 Hz

c) Oscillation counter (Optional)
Range: 0-999.999 sec
Resolution: 0.001 sec
Time measuring: Based on input from single start/stop sensor
Reset: Manual
Counts number of oscillation and time period for the oscillation
Rated Input: 220 V/50 Hz
or 110 V/60 Hz

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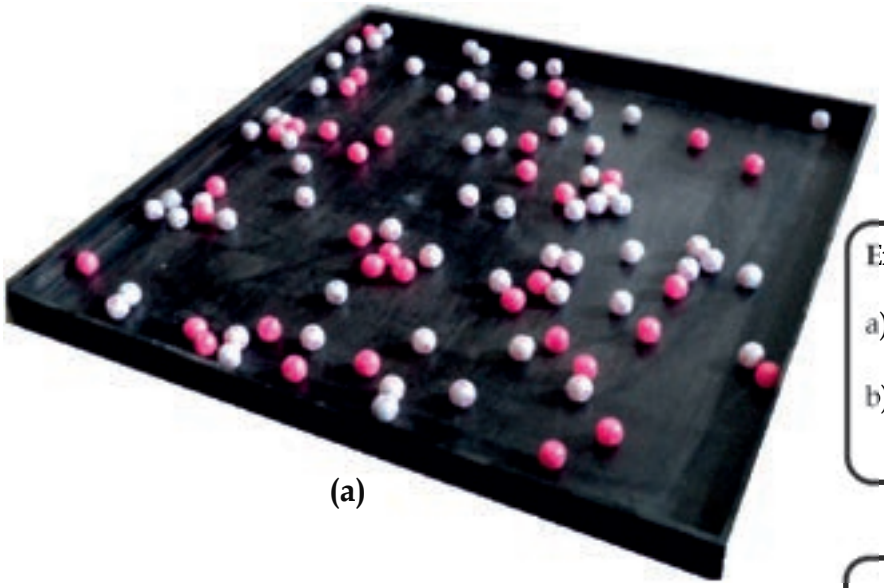
Experiment(s):

1. Simulation of radioactive decay (exponential decay) using rolling of dice

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-11, No.2, Page-146



(a)

Experiment setup consists:

a) Board

b) Dice set

Specifications:

a) Board

Size: 500 mm x 500 mm
Material: Wood

b) Dice set

Quantity: 100 nos - 5 nos spare
Size: 15 mm x 15 mm x15 mm

(b)

MECHANICS

Model: SCPU-201/418A
SCE-2004/418B

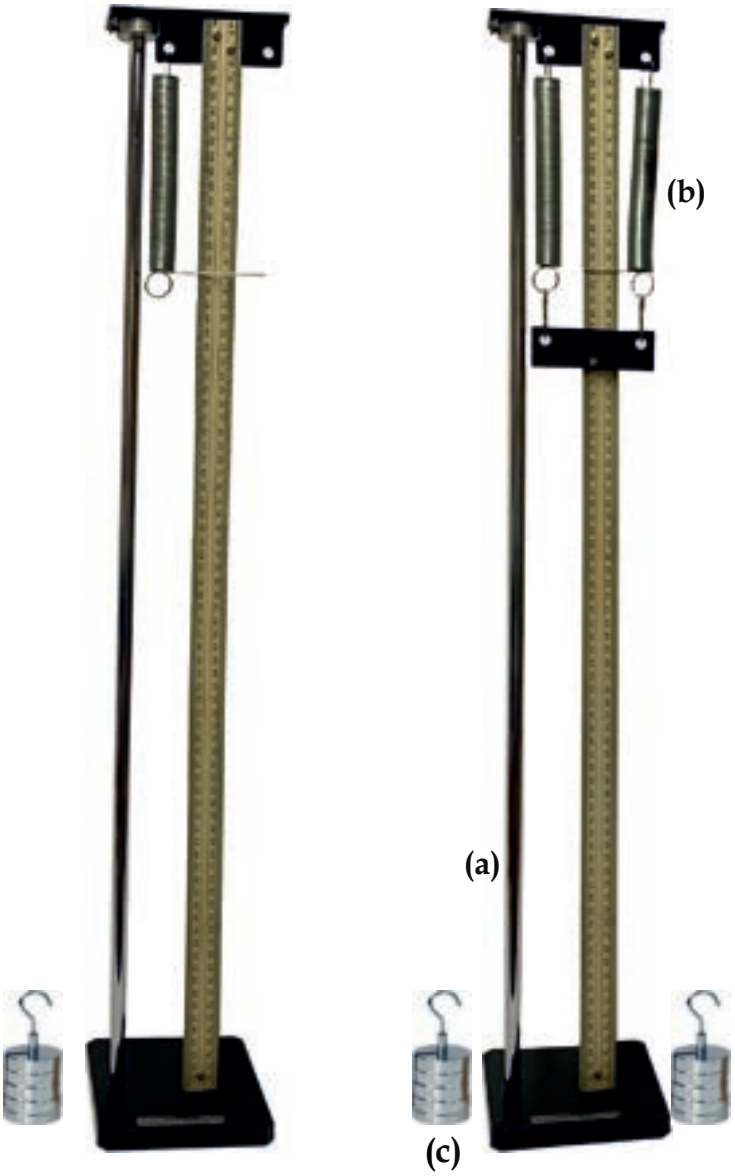
SPRING CONSTANT (HOOKE's LAW)

Experiment(s):

1. Verification of Hook's law
2. Verification of law of parallel and series combination of similar springs

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal for pre-university
Lab Experiments Journal for VTU Engineering physics



Experiment setup consists:

a) Spring constant stand

b) Springs

c) Weight set

Specifications:

a) Spring constant stand
Type: Desktop
Base: Heavy mild steel
Support rods: Stainless steel
Length: 790 mm
Wooden scale: Fixed at two ends

b) Spring set
Number of springs:
One (for SCPU-201/147A)
Two (for SCE-2004/147B)

c) Weight set
One set of 5 x 50 g
(for SCPU-201/147A)
Two sets of 7 x 50 g
(for SCE-2004/147B)
Hooks and jumper plate provided with SCE-2004/147B

MECHANICS

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SPRING CONSTANT BY STATIC & DYNAMIC METHOD

Model: SC-2004/419

Experiment(s):

1. Determination of Spring constant by static & dynamic methods

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-11, No.2, Page-146

Experiment setup consists:

a) Spring constant stand with 3 different springs
b) Slotted weight set
c) Digital stop clock

Specifications:

a) Spring constant stand with 3 different springs
Type: Table top
Base: Heavy steel
Support rods: Stainless steel
Length: 790 mm
Spring: 3 different springs of same material, different lengths

b) Slotted weight set
Weight: 5 x 100 g set

c) Digital stop clock
Range: 0-999.9 sec
Resolution: 0.1 sec
Time measuring: Manual start/stop
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: <20 W

(b)

(c)

(a)

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Model: STC-201/420

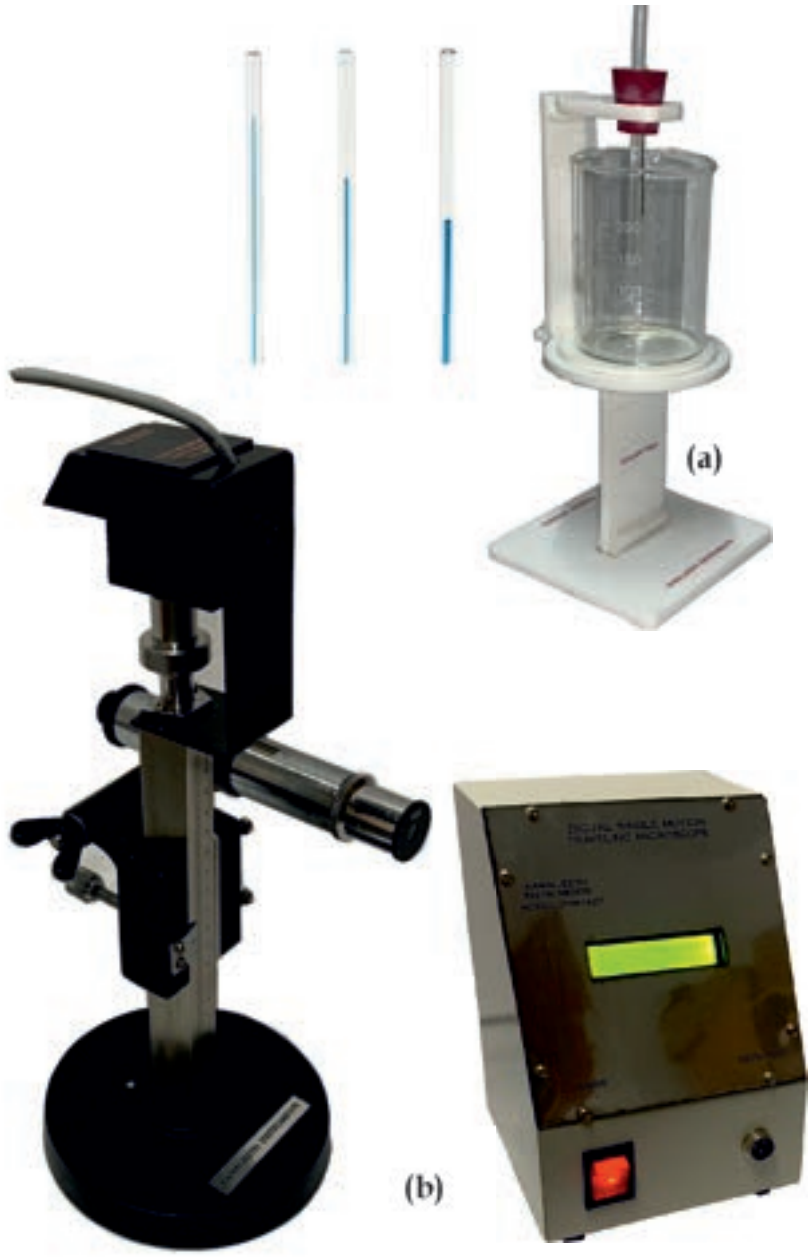
SURFACE TENSION BY CAPILLARY RISE METHOD

Experiment(s):

1. Determination of surface tension of liquids

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal for pre-university



Experiment setup consists:

a) Capillary stand and beaker holder

b) Digital travelling microscope

Specifications:

a) Capillary stand and beaker holder
Type: Desktop
Material: Acrylic
Reference pointer: Yes
Capillary tube: Changeable (3 different diameter)
Beaker: Max size 250 ml

b) Digital travelling microscope
Number of axis: 1 (Vertical)
Base: Cast iron
Moving parts: Brass
Focus: Adjustable
Free movement: 150 mm
Micrometer movement: 10 mm
Least count: 0.01 mm
Display: LCD
Detector: Resistive type
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: <20 W

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SURFACE TENSION BY CAPILLARY RISE METHOD

Model: STC-201/421

Experiment(s):

1. Determination of surface tension of liquids

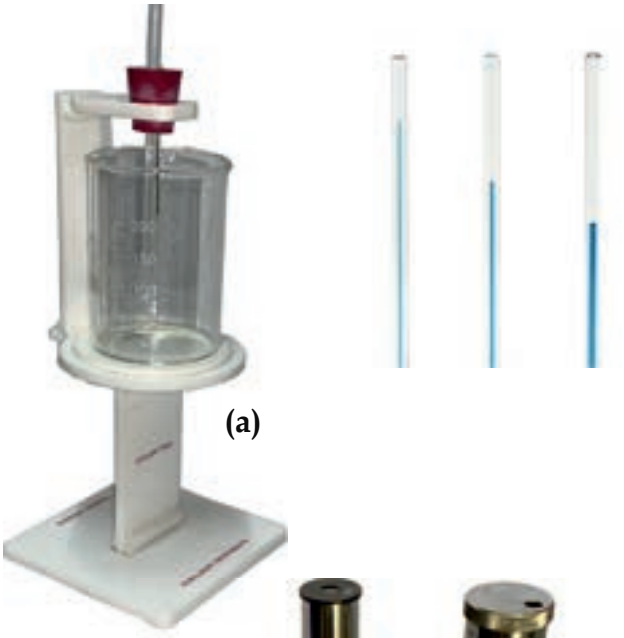
(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal for pre-university

Experiment setup consists:

a) Capillary stand and beaker holder

b) Digital travelling microscope



(a)

(b)

Specifications:

a) Capillary stand and beaker holder
Type: Desktop
Material: Acrylic
Reference pointer: Yes
Capillary tube: Changeable (3 different diameter)
Beaker: Max size 250 ml

b) Travelling microscope
Number of Axis: 2 (x and z axes)
Base: Cast iron
Moving parts: Brass
Focus: Adjustable
x- axis movement: 180 mm
Measurement: Screw gauge type
Least Count: 0.01 mm
Free movement: Yes
Magnifier: Yes
z- axis movement: 140 mm
Measurement: Screw gauge type
Least count: 0.01 mm
Free movement: Yes
Magnifier: Yes

MECHANICS

Model: STJ-201/422

SURFACE TENSION BY JEAGER's METHOD

Experiment(s):

1. Determination of surface tension of liquids with variation of concentration of salt solution

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-15, No.3, Page-162

(b)

Experiment setup consists:

a) Jeager's apparatus complete set

b) Capillary tube set

Specifications:

a) Jeager's apparatus
Manometer: 30 cm
Reservoir: 500 ml
Base: Wooden board
Reagent bottle with 2 hole corks
Rubber tubing: Provided, total length of 2 m
Drain: Beaker 500 ml
Drain stand: Height adjustable

b) Capillary tube
Uniform bore of 0.7 mm, 1 mm, 1.25 mm
Length: 100 mm

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TORSIONAL PENDULUM - RIGIDITY MODULUS OF WIRE

Model: TPE-201/423

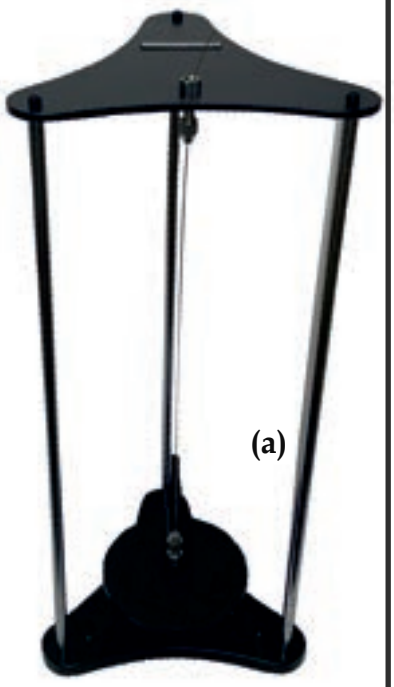
Experiment(s):

1. Determination of moment of Inertia of the given object
2. Determination of rigidity modulus of the given wire

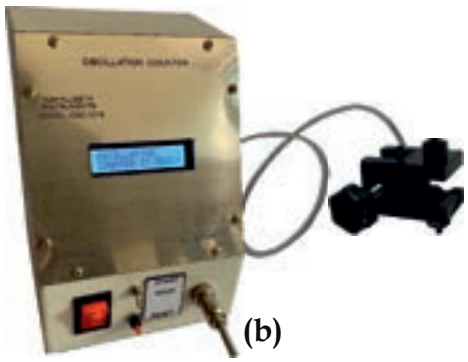
(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-14, No.3, Page-173

(c)



(a)



(b)

(d)

Experiment setup consists:

a) Torsional pendulum stand with circular disk
b) Oscillation counter OR
c) Digital stop clock (Optional)
d) MI plates - Rectangular & Irregular (Optional)

Specifications:

a) Torsional pendulum stand
Base: Heavy mild steel
Support rods: Stainless steel
Chuck nut: One
Reference pointer: One
Levelling screw: Yes
Wire: Brass (2 m)
MI plate: Circular

b) Oscillation counter
Range: 0-999.999 sec
Resolution: 0.001 sec
Time measuring: Based on input from single start/stop sensor
Reset: Manual
Counts number of oscillation and time period for the oscillation

OR

c) Digital stop clock (Optional)
Range: 0-999.9 sec
Resolution: 0.1 sec
Time measuring: manual start/stop
Rated Input: 220 V/50 Hz
or 110 V/60 Hz

d) Rectangular & Irregular MI plate
Suitable for parallel and perpendicular configuration
Chuck nut: One only

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Model: VPA-201/424

VISCOSITY BY POISEUILLE's METHOD

Experiment(s):

1. Determination of co-efficient of viscosity by pressure variation

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Detailed textbook of Engineering physics practicals by S P Basavaraju, Page - 99

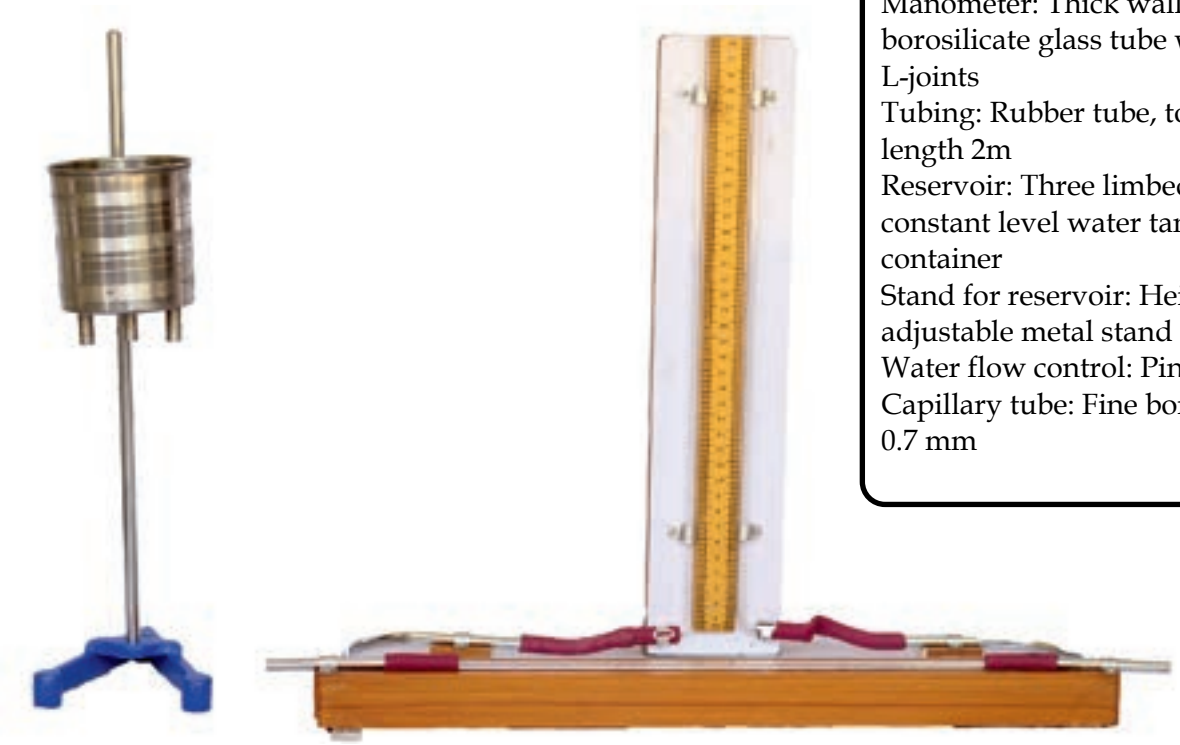
Experiment setup consists:

Poiseuille's apparatus complete set

Specifications:

Poiseuille's apparatus

Base: Wooden board
Scale: 40 cm
Manometer: Thick wall borosilicate glass tube with L-joints
Tubing: Rubber tube, total length 2m
Reservoir: Three limbed constant level water tank container
Stand for reservoir: Height adjustable metal stand
Water flow control: Pinch cork
Capillary tube: Fine bore 0.7 mm



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VISCOSITY BY STOKE's METHOD

Model: VSM-201/425

Experiment(s):

1. Determination of co-efficient of viscosity

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-12, No.2, Page-130

Experiment setup consists:

a) Viscosity jar

b) Digital stop clock

c) Time interval clock

(b)

(c)

(a)

Specifications:

a) Viscosity jar
Length: 1000 mm
Material: Acrylic (plastic)
Stand: Heavy cast iron
Fluid: Castor oil/Gylcerin (Not Included)
Objects: Aluminium/ Steel balls

b) Digital stop clock (Optional)
Range: 0-999.9 sec
Resolution: 0.1 sec
Time measuring: Manual start/stop
Rated Input: 220 V/50 Hz or 110 V/60 Hz
Power consumption: <30 W

c) Time interval clock (Optional)
Range: 0-999.9 sec
Resolution: 0.1 sec
Time measuring: Based on inputs from start sensor and stop sensor
Reset: Automatically on interrupting start sensor
Rated Input: 220 V/50 Hz or 110 V/60 Hz
Power consumption: <30 W

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Model: YMK-201/426

YOUNG's MODULUS BY KOENIG's METHOD

Experiment(s):

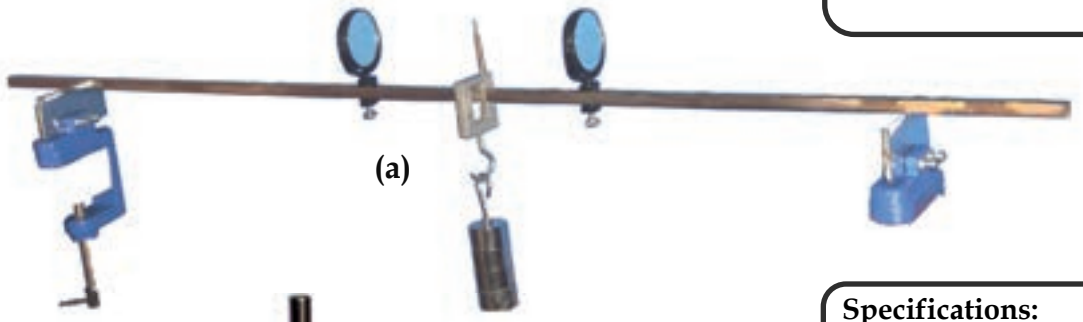
1. Determination of Young's modulus of square cross sectional metal rod

(For more details, procedure & manual visit: www.kamaljeeth.net)

Experiment setup consists:

a) Koenig's apparatus

b) Scale and telescope arrangement



(a)

(b)

Reference : Lab Experiments Journal for Engineering Physics

Specifications:

a) Koenig's apparatus
Beam: Brass beam
Length: 1 m
Size: 10 mm
Marking: Engraved cm scale
Mirror: Tilt adjustable with slider (2nos)
Knife edges: Table mounting type with steel knife edges (2 nos)
Weight hanger: Weight hanger with pointer and hook
Weight set: Slotted weight rough 5 x 500 g

b) Scale and telescope on stand
Base: Heavy cast iron
Telescope height: Adjustable
Focus: Adjustable (2m ~ infinity)
Tilt: Adjustable
Scale: Engraved translucent
Length: 50 cm
Width: 30 mm
Mount: Vertical and horizontal

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YOUNG's MODULUS BY BENDING

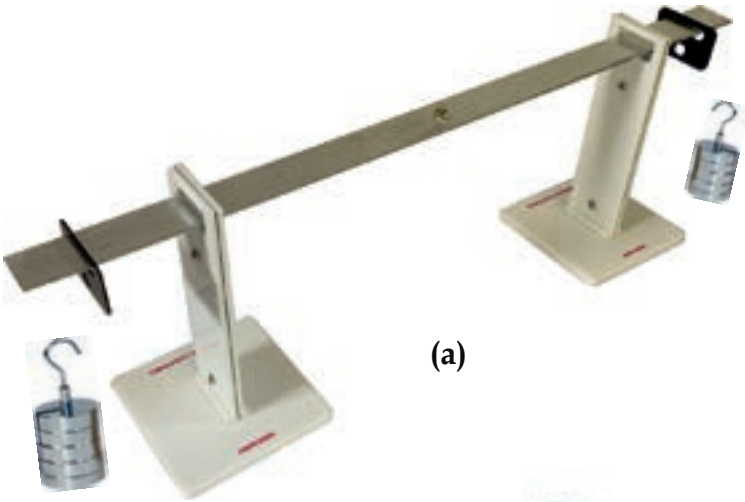
Model: YMU-201/427

Experiment(s):

1. Determination of Young's modulus of rectangular cross section by uniform bending

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Detailed textbook of Engineering physics practicals by S P Basavaraju, Page -63



(a)

(b)

(c)

Specifications:

a) Uniform cross section aluminium beam
Material: Aluminium
Length: 600 mm
Pointer: Fixed
Weight set: 5x50 g (2nos)
Knife edge: Acrylic body with steel knife edges

b) Travelling microscope
Number of axis: 2
(x and z axes)
Base: Cast iron
Moving parts: Brass
Focus: Adjustable
x- axis movement: 180 mm
Measurement: Screw gauge type
Least Count: 0.01 mm
Free movement: Yes
Magnifier: Yes
z- axis movement: 140 mm
Measurement: Screw gauge type
Least Count: 0.01 mm
Free movement: Yes
Magnifier: Yes

OR
c) Digital travelling microscope
Number of axis: 1 (Vertical)
Base: Cast iron
Moving parts: Brass
Focus: Adjustable
Free movement: 150 mm
Micrometer movement: 10 mm
Least count: 0.01 mm
Display: LCD
Detector: Resistive type
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: <20 W

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Model: YMC-201/428

YOUNG's MODULUS BY CANTILEVER METHOD

Experiment(s):

1. Determination of Young's modulus of rectangular cross section by cantilever method

(For more details, procedure & manual visit: www.kamaljeeth.net)

(a)

(b)

Experiment setup consists:

a) Cantilever beam & weight set

b) Digital travelling microscope

Specifications:

a) Cantilever beam
Base: Heavy metal base
Beam: Aluminium with pointer at end
Interchangeable beams with varying length, thickness and materials available on request
Weight set: 7 x 50 g

b) Digital travelling microscope
Number of axis: 1 (Vertical)
Base: Cast iron
Moving parts: Brass
Focus: Adjustable
Free movement: 150 mm
Micrometer movement: 10 mm
Least count: 0.01 mm
Display: LCD
Detector: Resistive type
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: <20 W

Reference : Lab Experiments Journal for Engineering Physics

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Website: **www.kamaljeeth.net**, Email: labexperiments@kamaljeeth.net

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YOUNG's MODULUS BY STRAIN GAUGE

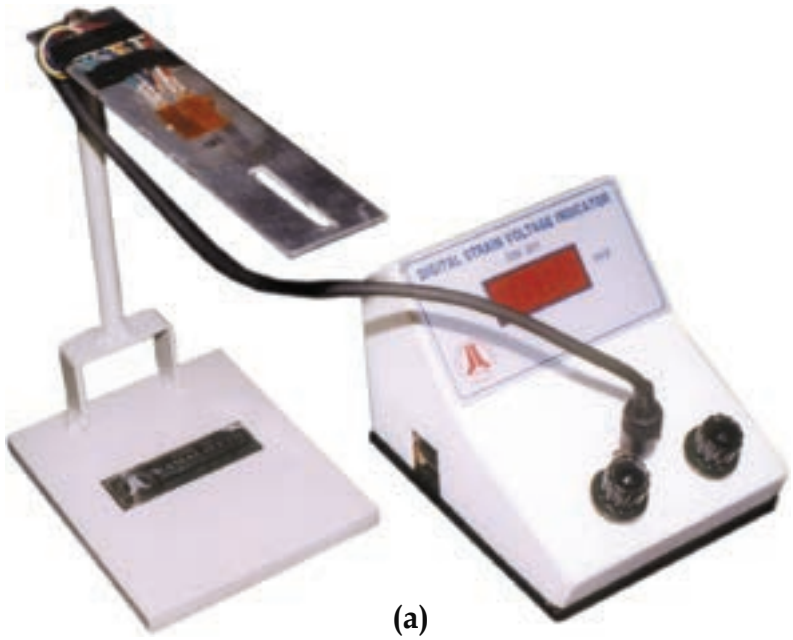
Model: YMS-201/429

Experiment(s):

1. Determination of Young's modulus of rectangular cross section by cantilever method

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-3, No.2, Page-110



(a)

(b)

Experiment setup consists:

a) Strain gauge amplifier

b) Weight set

Specifications:

a) Strain gauge amplifier
Milli-voltmeter with built in power supply and zero setting
Strain gauges: 4 Strain gauges connected in Wheatstone bridge
Gauge factor: 2.1 + 2%
Excitation voltage: 1.2 V
Load variation: Slotted weight set
Rated Input: 220 V/50 Hz
or 110 V/60 Hz

Cantilever beam: Aluminium of standard length and thickness,
Interchangeable beams with varying length, thickness and materials available on request

b) Weight set
One set of 5 x 50 g

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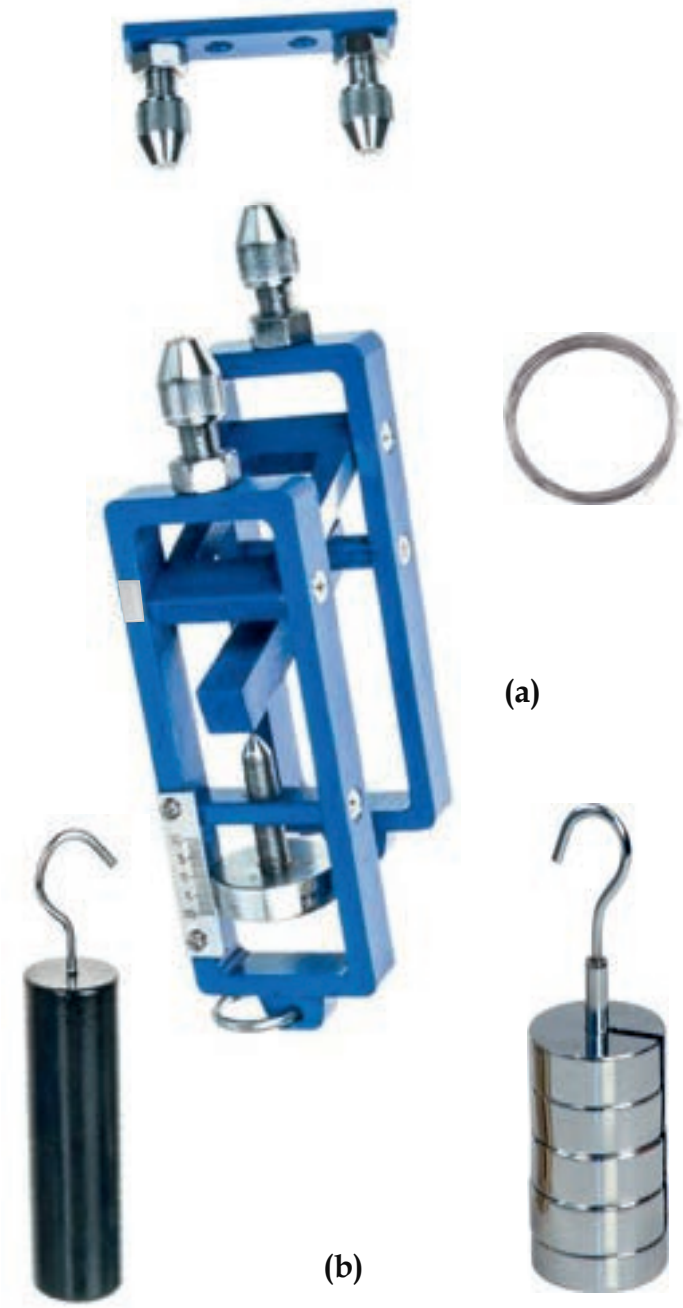
YOUNG's MODULUS BY SEARLE's METHOD

Experiment(s):

1. Determination of Young's modulus of wire by stretching

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-12, No.1, Page-42



(a)

(b)

Experiment setup consists:

a) Searle's apparatus

b) Weight set

Specifications:

a) Searle's Apparatus

Frame: Twin cast iron frames
Levelling: Using spirit level
Scale: Micrometer type
Resolution: 0.01 mm
Movement: 60 mm
Mounting: Twin chuck nut type
Upper mounting: To ceiling using a wooden board (wooden board not provided)
Sample wire: Steel wire of diameter 0.5 mm

b) Weight Set

Dead weight: Yes
Known weight: 5 x 500 g slotted weight set

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Experiment(s):

1. Determination of unknown inductance

(For more details, procedure & manual visit: www.kamaljeeth.net)

Experiment setup consists:

a) Anderson bridge kit

b) Fixed frequency oscillator

c) Digital null detector

Specifications:

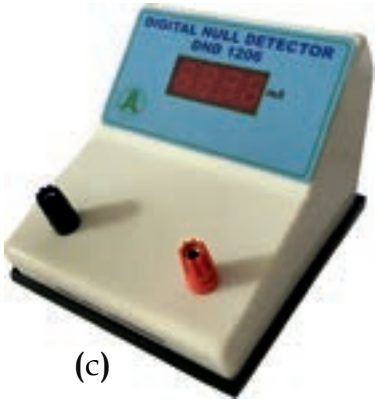
a) Anderson bridge kit
Variable resistors: 2
Range: 1 Ω to 1 KΩ
Range: 10 Ω to 10 KΩ
Variable capacitor: 1
Range: 0.01 μF to 0.1 μF

b) Fixed frequency oscillator
Range: Fixed @ 1 KHz
Waveform: Sine
Display: None
Amplitude: Variable
Output impedance: 50 Ω
Output: 4 mm connector
Max: Amplitude: Max 20V P-P
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: <20 W
Cabinet: Metal

c) Digital null detector/ Galvanometer
Range: -1999 to 0 to 1999
Input: 4 mm Connector
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power Consumption: <20 W
Cabinet: Acrylic

(a)

(b)



(c)

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Model: MV-555/502

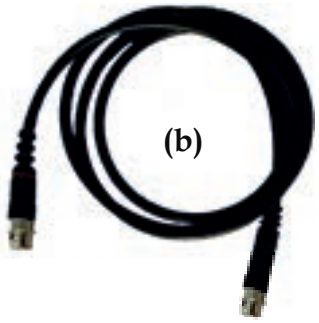
ASTABLE MULTI-VIBRATOR USING IC 555

Experiment(s):

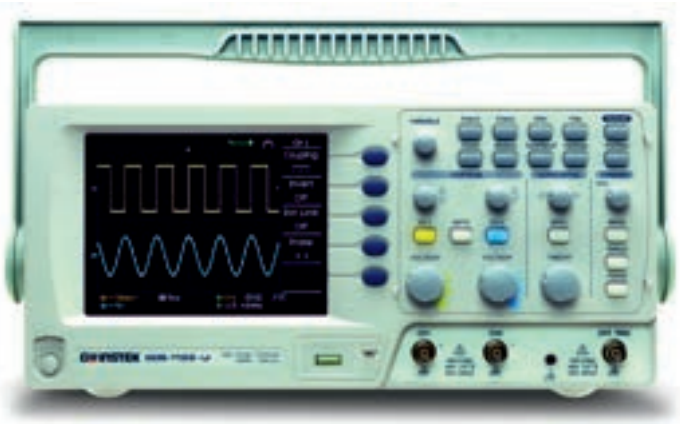
1. Construction of astable multivibrator of required frequency

(For more details, procedure & manual visit: www.kamaljeeth.net)

(a)



(b)



(c)

Experiment setup consists:

a) Astable multi-vibrator kit

b) BNC connector

c) Digital Storage Oscilloscope

Specifications:

a) Astable multi-vibrator kit
Power supply: Built in 5V DC
IC: Replaceable type externally mountable, IC 555
Components: Set of external resistors and capacitors
Output: Achievable frequency from 1 Hz to 5 KHz by varying R and C

b) BNC connector
Type: BNC to BNC connector
Length: 1.2 m
Rated Input: 220 V/50 Hz
or 110 V/60 Hz

c) Digital Storage Oscilloscope (DSO)
Make: GW Instek
Model: 1102-U
Bandwidth: 100 MHz
Channels: 2
Sampling rate: 250 million samples/sec
Display: 5.7" TFT Colour
USB PC interface: Yes
Warranty: 5 years
Rated Input: 220 V/50 Hz
or 110 V/60 Hz

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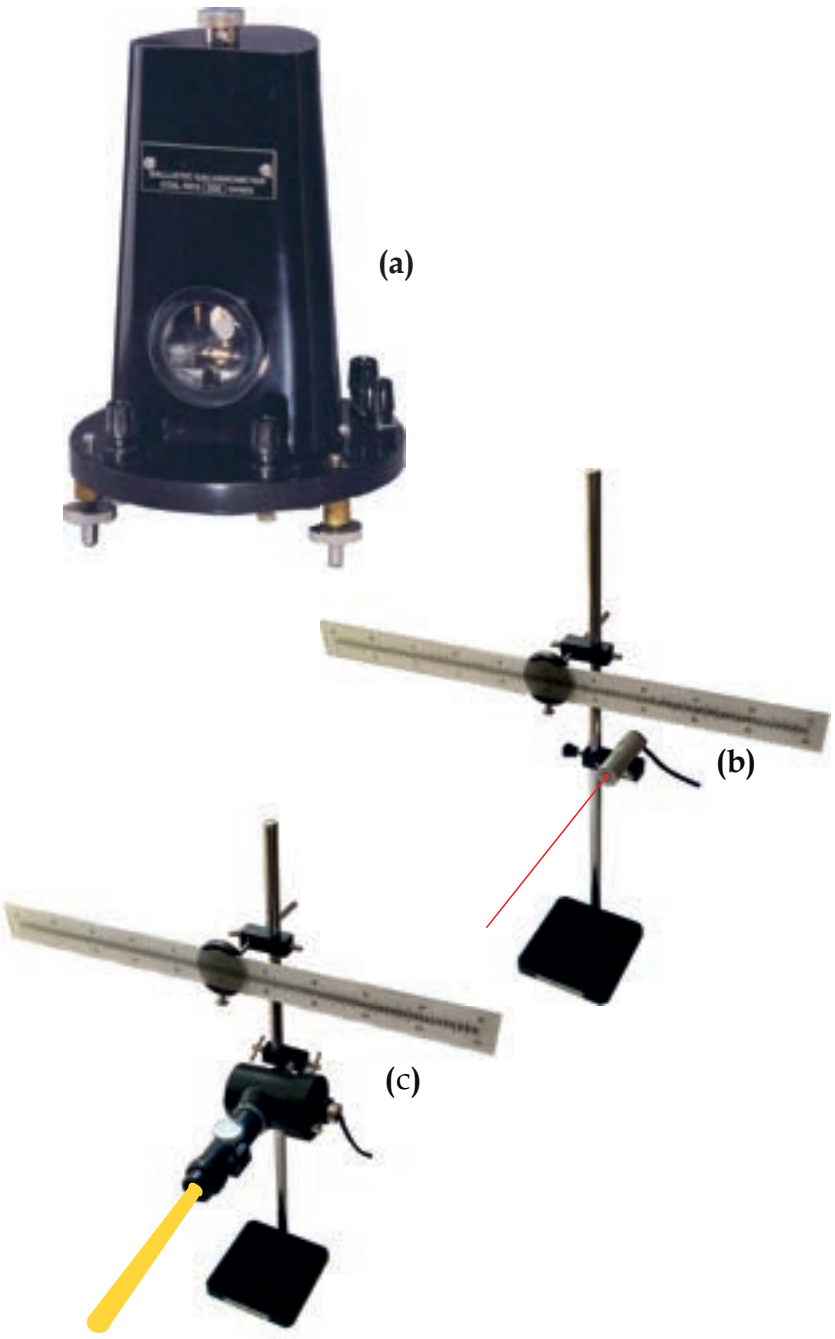
Experiment(s):

1. Determination of charge sensitivity

(For more details, procedure & manual visit: www.kamaljeeth.net)



Specifications:

a) Ballistic Galvanometer
Resistance:
100 Ohms (OHM-201/168/A)
or
500 Ohms (OHM-201/168/B)
Time period: 10 to 12 sec
Current sensitivity: 0.3 μA/ div
Critical damping resistance: 1000Ω
Type: Moving coil
Zero adjust: Yes
Lock: Yes
Wire: Phosphor bronze suspension wire
Mirror: Concave, F=100 cm
Dimensions: 150 mm x 150mm x 250mm
Suitable to be used with

b) Laser and scale arrangement
Source: Semi conductor Laser
Focal length: NA
Spot distance: 10 cm to 10 m
Base: Heavy cast iron
Scale: Translucent engraved, 50 cm
Rated Input: 220 V/50 Hz
or 110 V/60 Hz

OR
c) Lamp and scale arrangement
Source: Tungsten bulb
Focal length: adjustable (1m~2m)
Spot: Line
Base: Heavy cast iron
Scale: Translucent engraved, 50 cm
Rated Input: 220 V/50 Hz
or 110 V/60 Hz

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BLACK BOX

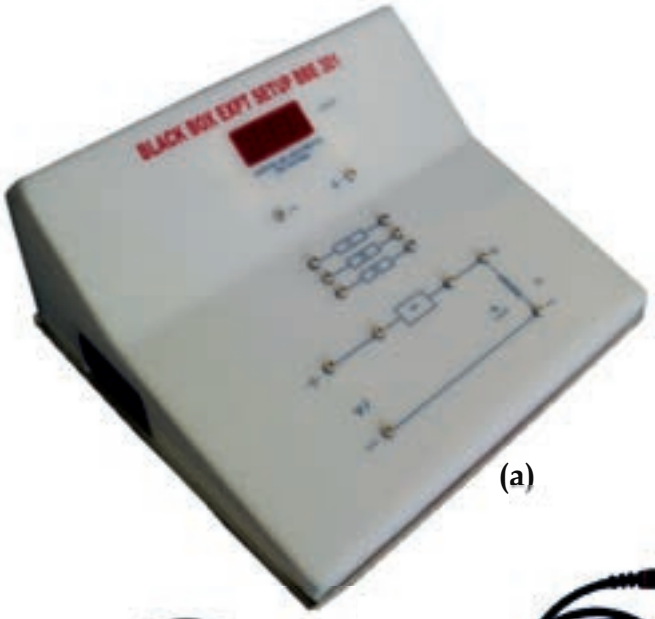
Experiment(s):

1. Identification of unknown components by seeing its AC response

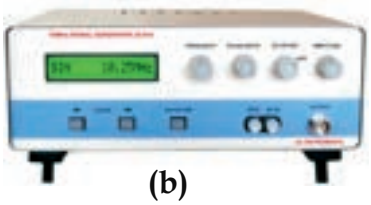
2. Determination of the values of the components
   (Inductor, capacitor & resistor)

(For more details, procedure & manual visit: www.kamaljeeth.net)

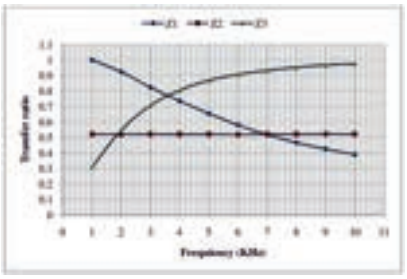
Reference : Lab Experiments Journal vol-14, No.3, Page-167



(a)



(b)



Variation of transfer ratios of different components v/s frequencies

Experiment setup consists:

a) Black box kit

b) Signal generator

Specifications:

a) Black box kit
Unknown components: Inductance, capacitor and resistor
Meter: Digital wide band AC voltmeter
Display: Digital AC 3½ digit, LED
Range: 20 V
Resolution: 0.1 V
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: <50 W
Cabinet: Acrylic body, aluminium bottom
Patch cords
Set of standard 2mm patch cords of different lengths with spare cords

b) Signal generator
Frequency: 1 Hz to 1 MHz
Display: Frequency & waveform
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: <30 W
Amplitude: 0 to 20 V variable
Waveforms: Sine, square and triangular

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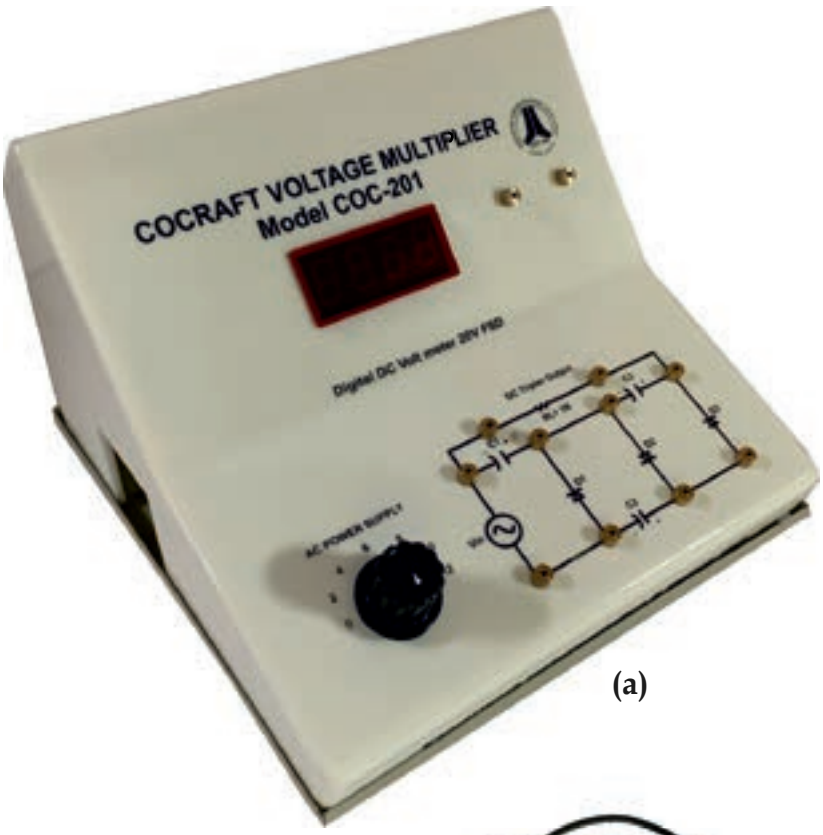
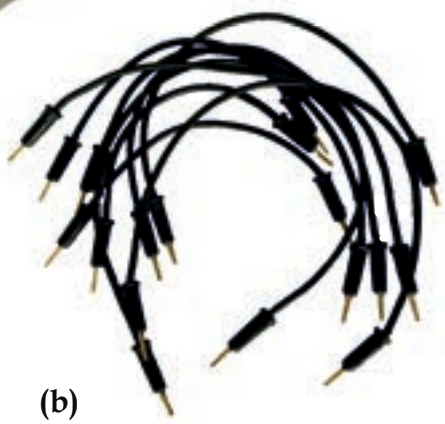
Experiment(s):

1. Understand the working principle of Cocroft voltage multiplier

(For more details, procedure & manual visit: www.kamaljeeth.net)



(a)



(b)

Experiment setup consists:

a) Cocraft voltage multiplier kit

b) Set of patch cords

Specifications:

a) Cocraft voltage multiplier kit
Voltmeter: Wide band digital AC voltmeter
Range: 0 - 20 V
Resolution: 0.01 V
Capacitors: Built-in
Resistors: Built-in
Diode: Built-in
Input: Step variable AC power source, frequency 50 Hz
Voltage: 0 - 12 V AC
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: <20 W
Cabinet: Metal

b) Patch cords
Set of standard 2 mm patch cords of different lengths with spare cords

ELECTRICITY

Model: CGV-501/506

CONVERSION OF GALVANOMETER

Experiment(s):

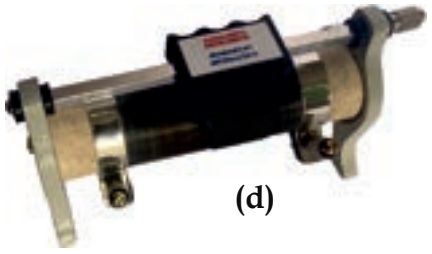
1. Current sensitivity of a galvanometer
2. Conversion of galvanometer into voltmeter
3. Conversion of galvanometer into ammeter

(For more details, procedure & manual visit: www.kamaljeeth.net)

(a)

(b)

(c)



(d)

(e)

(f)

(g)

Experiment setup consists:

a) Galvanometer
b) Power supply
c) Resistance box
d) Rheostat
e) Ammeter
f) Voltmeter
g) Connecting wires

Specifications:

a) Galvanometer
Range: 30-0-30
Sensitivity: 2 μA/div

b) Power supply
Voltage: 0-2 V variable
Current: Max 1 A
Key: Built-in

c) Resistance box
Type: Plug type
Resistance coil: Manganin

d) Rheostat
Resistance : 660 Ω

e) Reference ammeter
Range: 2A
Resolution:

f) Reference voltmeter
Range: 10 V
Resolution: 0.1 V

g) Connecting wires
As required for both experiments

ELECTRICITY

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DIELECTRIC CONSTANT OF A CAPACITOR

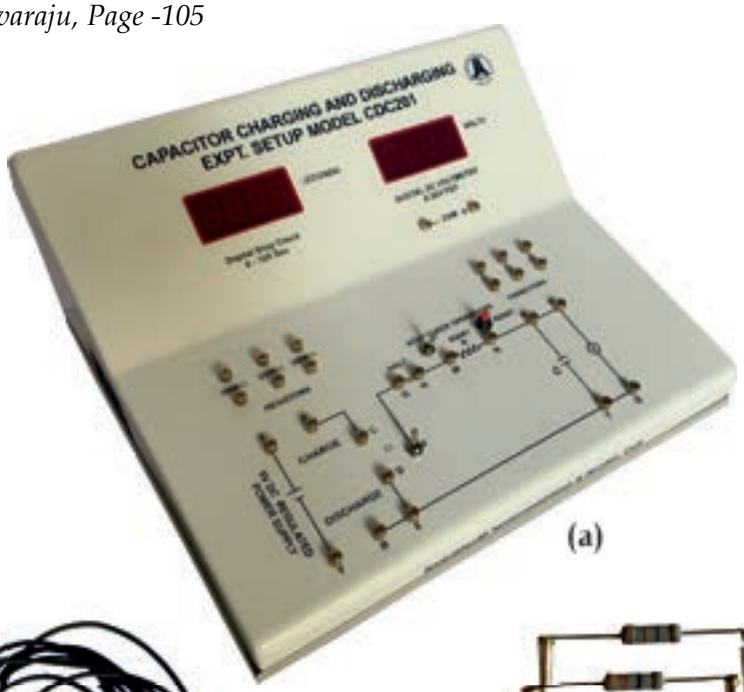
Model: CDC-201/507

Experiment(s):

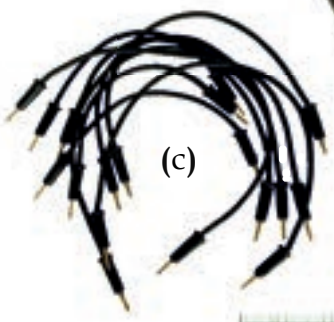
1. Determination of dielectric constant of a capacitor by the method of charging and discharging

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Detailed textbook of Engineering physics practicals by S P Basavaraju, Page -105

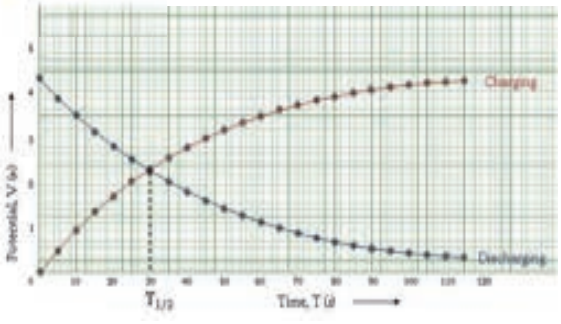


(a)



(c)

(b)



Voltage v/s time for Charging & discharging a capacitor

Experiment setup consists:

a) Capacitor charging & discharging kit

b) Set of patch cords

c) Set of external components (Optional)

Specifications:

a) Capacitor charging & discharging kit
Power supply: 0-5 V (DC) variable & regulated
Volt meter: Digital DC 3½ digit
Range: 20 V
Resolution: 0.01 V
Timer: Digital DC 3½ digit
Range: 999 sec
Resolution: 1 sec
Capacitors: selectable (3 values)
Dimensions: Provided
Resistors: selectable (3 values)
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: <50 W
Cabinet: Acrylic body, aluminium bottom

b) External components
Set of Resistors and Capacitors mountable externally

c) Patch cords
Set of standard 2 mm patch cords of different lengths with spare cords

ELECTRICITY

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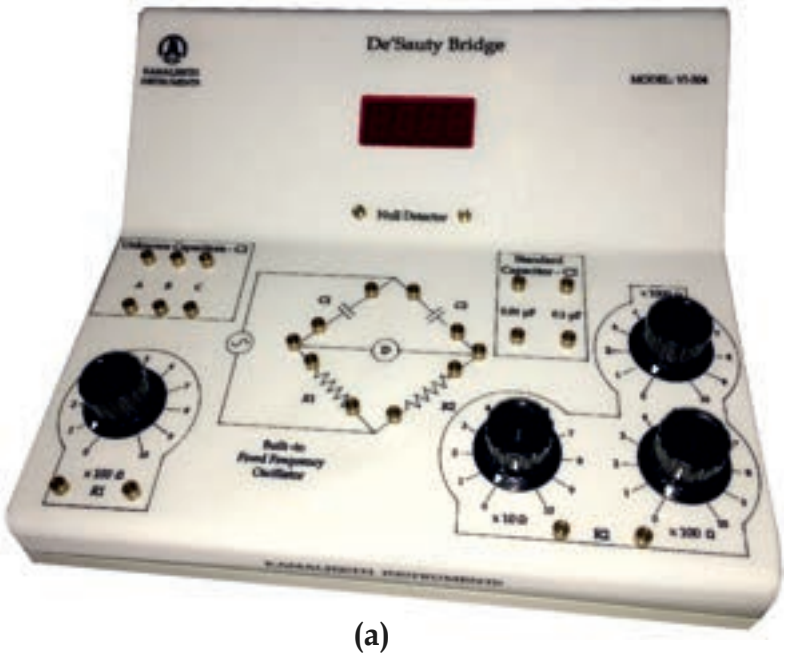
De' SAUTHY BRIDGE

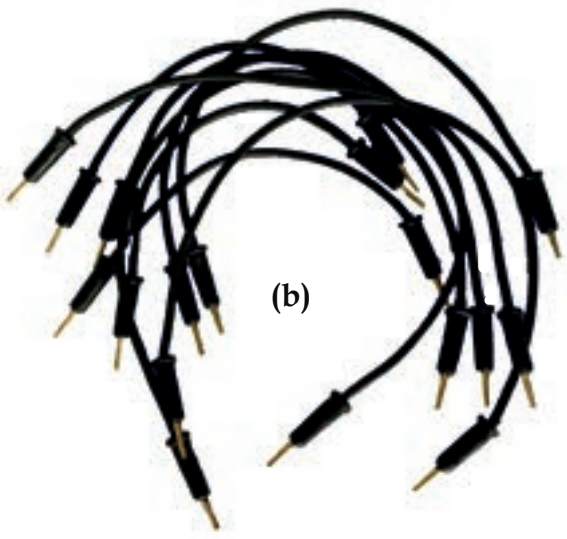
Experiment(s):

1. Determination of unknown capacitance

(For more details, procedure & manual visit: www.kamaljeeth.net)



(a)



(b)

Experiment setup consists:

a) De'Sauthy bridge kit

b) Set of patch cords

Specifications:

a) De'Sauthy bridge kit:
Unknown capacitor: 3
Known capacitor: 2
Variable resistance set: 2
10 Ω to 10 KΩ
Range: 100 Ω to 1 KΩ

Built-in fixed frequency oscillator
Range: Fixed @ 1 KHz
Waveform: Sine
Display: None
Amplitude: Fixed

Built-in digital Galvanometer/ Null detector
Range: -1999 to 0 to 1999
Input: 2 mm connector
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: <20 W
Cabinet: Metal

b) Patch cords
Set of standard 2 mm patch cords of different lengths with spare cords

ELECTRICITY

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DIELECTRIC CONSTANT OF LIQUIDS & SOLIDS

Model: DECL-1912/509

Experiment(s) :

1. Determination of dielectric constant of liquids

2. Determination of dielectric constant of solids

(For more details, procedure & manual visit: www.kamaljeeth.net)

Experiment setup consists:

a) Capacitance metre
b) Dielectric constant of solids arrangement
c) Dielectric constant of liquids arrangement

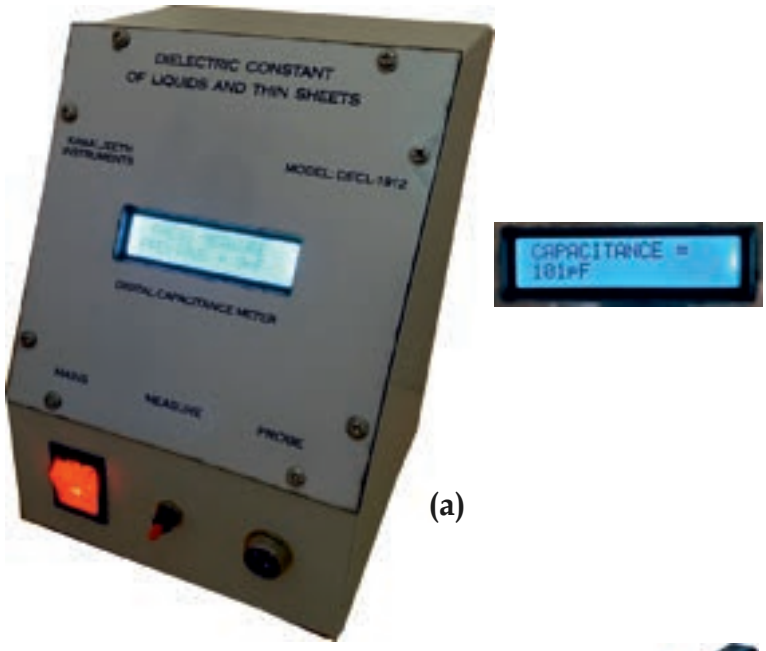
Specifications:

a) Capacitance meter
Range 0-1000 pF
Resolution: 1 pF
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: <20 W
Mains socket: 3 Pin with fused protection

b) Dielectric of solids arrangement
Capacitor: Parallel mounted aluminium discs
Sample thickness:
1 mm to 25 mm

c) Dielectric of liquids arrangement
Capacitor: Concentric aluminium cylinders with cavity for liquid flow
Suitable for non corrosive inorganic liquids only
Sample quantity: 75 ml

Dimensions
Capacitance meter: 140 mm x 145 mm x 210 mm
Dielectric of solids arrangement:
210 mm x 150 mm x 100 mm
Dielectric of liquid arrangement:
50 mm x 50 mm x 100 mm



(a)

(b)

(c)

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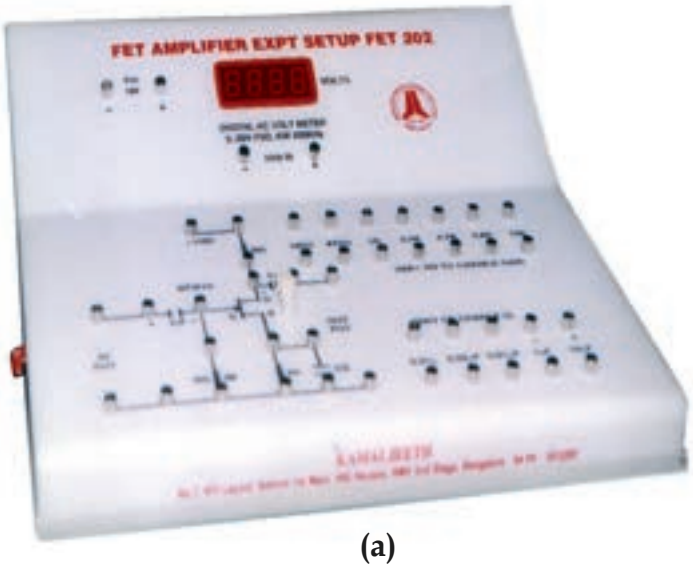
FET AMPLIFIER

Experiment(s):

1. Common Source (CS) amplifier frequency response

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal



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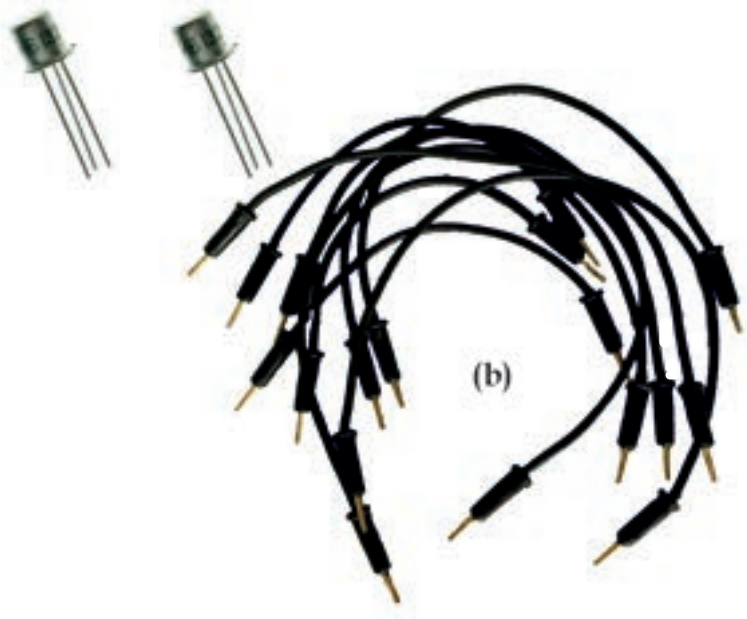


(b)

Experiment setup consists:

a) FET amplifier kit

b) Set of patch cords

Specifications:

a) FET amplifier kit
Input: Built-in AC power source
Metre: Digital wide band AC voltmeter
Display: Digital DC 3½ digit, LED
Range: 20 V
Resolution: 0.1 V
FET: Externally mountable
Variable components:
Capacitors (5 nos)
Resistors (7 nos)
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Socket: 3 pin
Power consumption: <50 W
Cabinet: Acrylic body, aluminium bottom

b) Patch cords
Set of standard 2 mm patch cords of different lengths with spare cords

ELECTRICITY

Experiment(s):

1. Verification of Kirchoff's law using Wheaston's bridge.

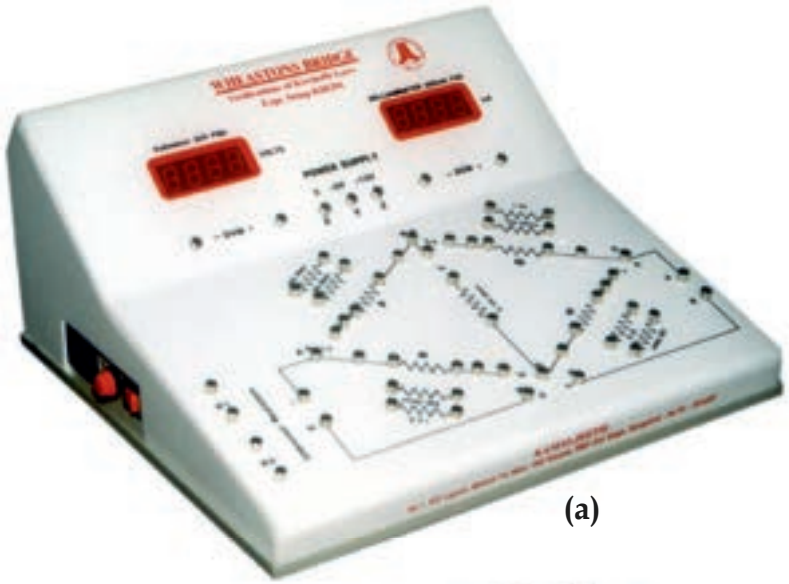
(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Detailed textbook of Engineering physics practicals by S P Basavaraju, Page - 109

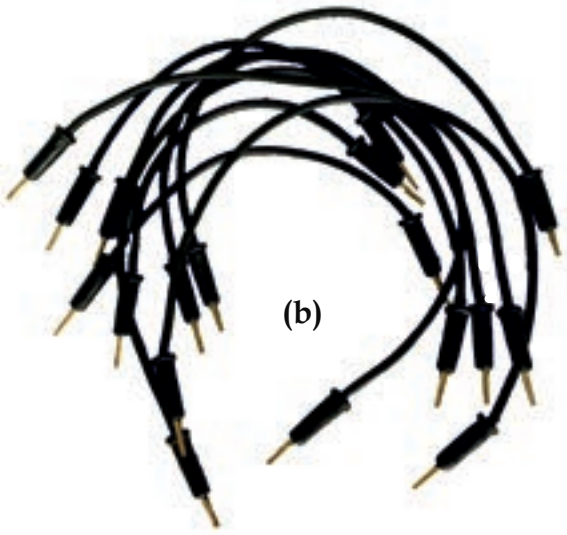
Experiment setup consists:

a) Wheatstone bridge kit

b) Set of patch cords



(a)



(b)

Specifications:

a) Wheatstone bridge kit
Voltmeter: Digital DC voltmeter
Display: 3½ digit, LED
Range: 20 V
Resolution: 0.01 V
Current meter: Digital DC current meter
Display: 3½ digit, LED
Range: 200 mA
Resolution: 0.1 mA
Components: Set of known value resistors and set of two unknown resistors
Power Supply: Selectable voltage
5 V DC or 12 V DC
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: <30 W
Cabinet: Acrylic body, aluminium bottom

b) Patch cords
Set of standard 2 mm patch cords of different lengths with spare cords

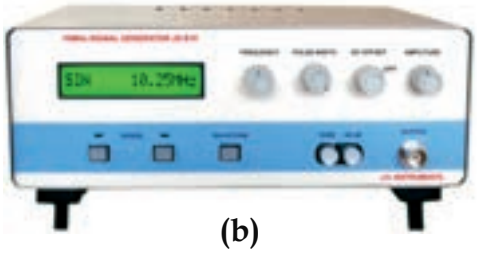
L.C.R RESONANCE

Experiment(s):

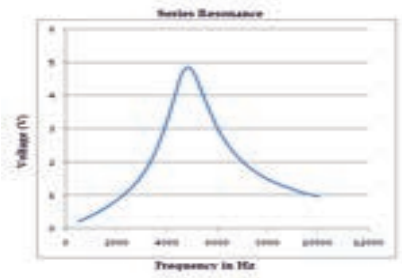
1. Realisation of series and parallel resonance
2. Determination of L & Q variations

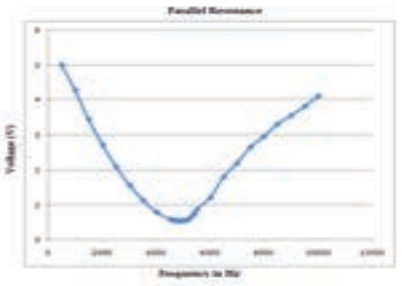
Reference : Detailed textbook of Engineering physics practicals by S P Basavaraju, Page - 115

(a)



(b)





Experiment setup consists:

a) Resonance kit

b) Set of patch cords

c) Signal generator

Specifications:

a) Resonance kit
Components:
Inductance - selectable 2 values
Capacitor - selectable 3 values
Resistor - selectable 3 values
Meter: Digital wide band AC voltmeter
Range: 20 V
Resolution: 0.1 V
Display: Digital DC 3½ digit, LED
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: <50 W
Cabinet: Acrylic body, aluminium bottom

b) Signal generator
Range: 1 MHz
Waveform: Sine, triangular, square and pulse
Display: Waveform & frequency
DC offset: Yes
Output impedance: 50 Ω
Accuracy: 0.1% > 100 Hz
Output: BNC connector
Max. amplitude: 20V P-P
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power Consumption: <20 W
Cabinet: Metal

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Experiment(s):

1. Determination of unknown inductance

(For more details, procedure & manual visit: www.kamaljeeth.net)

(a)

(b)

(c)

Experiment setup consists:

a) Maxwell bridge kit

b) Fixed frequency oscillator

c) Digital null detector

Specifications:

a) Maxwell bridge kit
Variable resistors: 2
Fixed capacitor: 1

b) Fixed Frequency Oscillator
Range: Fixed @ 1 KHz
Waveform: Sine
Display: None
Amplitude: Variable
Output impedance: 50 Ω
Output: 4 mm connector
Max. Amplitude: Max 20 V P-P
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: <20 W
Cabinet: Metal

c) Digital null detector/ Galvanometer
Range: -1999 to 0 to 1999
Input: 4 mm connector
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: <20 W
Cabinet: Metal

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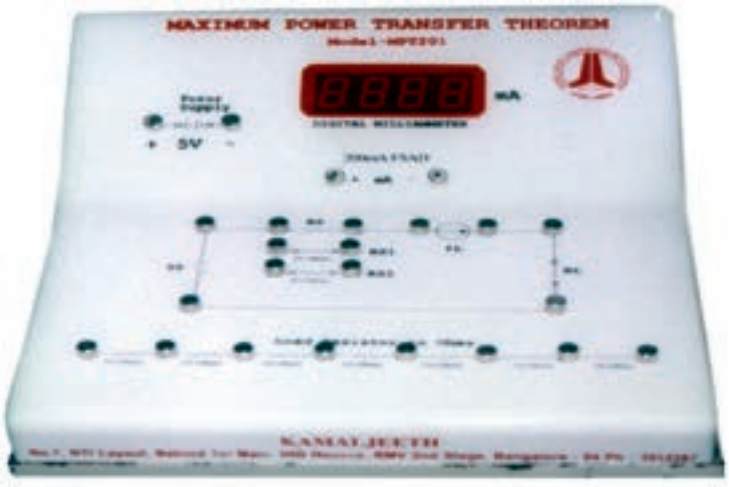
MAXIMUM POWER TRANSFER THEOREM

Experiment(s):

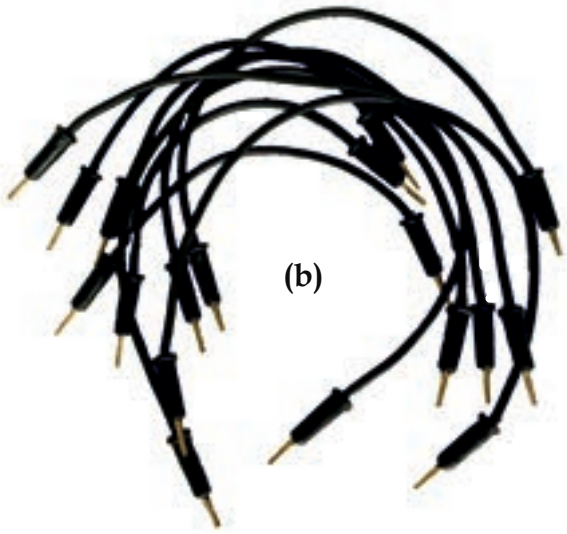
1. Verification of Maximum power transfer theorem

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal



(a)



(b)

Experiment setup consists:

a) Maximum power transfer kit

b) Set of patch cord

Specifications:

a) Maximum power transfer kit

Power supply: Regulated (DC) 5 V
Current meter: Digital DC current meter
Display: 3½ digit, LED
Range: 200 mA
Resolution: 0.1 mA
Components: Set of known value resistors
Load Resistance: Selectable
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: <30W
Cabinet: Acrylic body, aluminium bottom

b) Patch cords

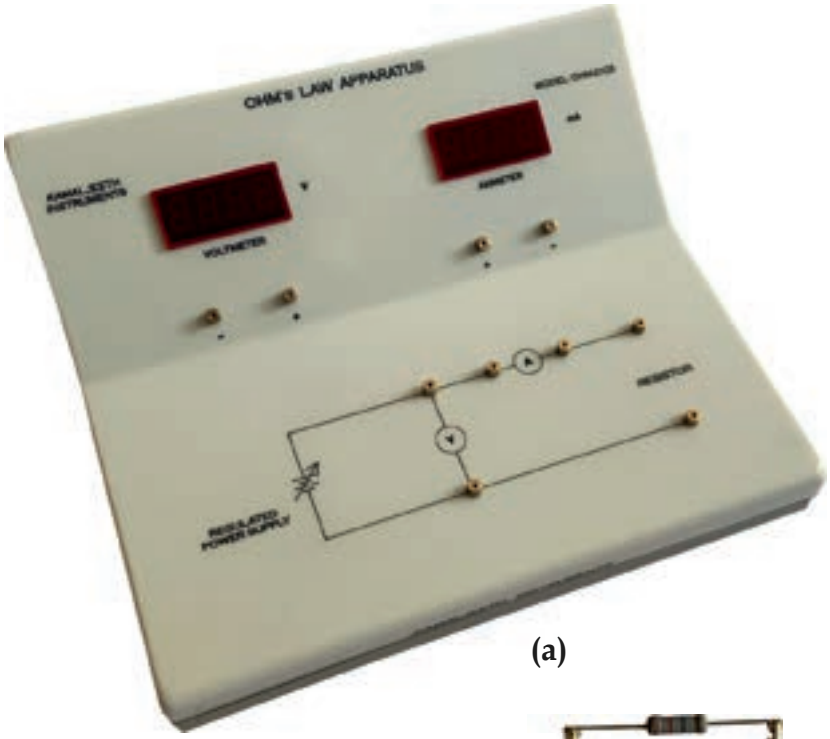
Set of standard 2 mm patch cords of different lengths with spare cords

ELECTRICITY

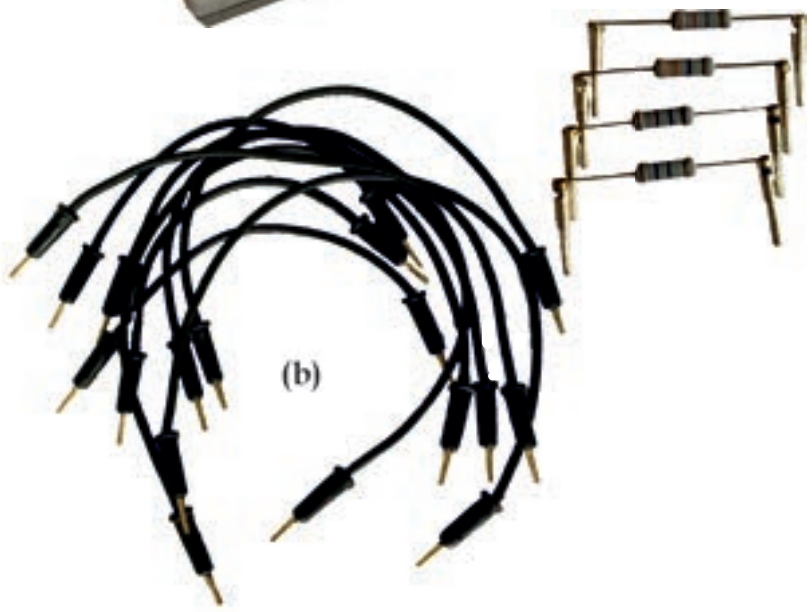
Experiment(s):

1. Verification of Ohms's law

(For more details, procedure & manual visit: www.kamaljeeth.net)



(a)



(b)

Experiment setup consists:

a) Ohm's law apparatus

b) Set of patch cord

Specifications:

a) Ohm's law apparatus
Voltmeter: Digital DC voltmeter
Display: 3½ digit, LED
Range: 20 V
Resolution: 0.1 V
Current meter: Digital DC current meter
Display: 3½ digit, LED
Range: 200 mA
Resolution: 0.1 mA
Components: Set of known value resistors mountable externally
Power supply: Regulated
Power supply: 20 V (DC)
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: <30 W
Cabinet: Acrylic body, aluminium bottom

b) Patch cords
Set of standard 2 mm patch cords of different lengths with spare cords

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Model: RCOP-201/516

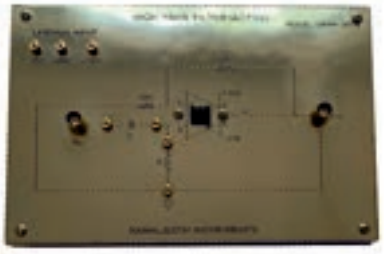
RC FILTERS (ACTIVE & PASSIVE)

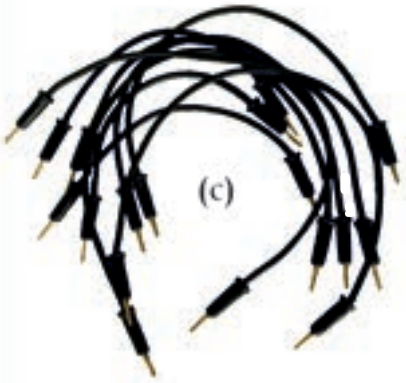
Experiment(s):

1. Construction of low, high and band pass filters

(For more details, procedure & manual visit: www.kamaljeeth.net)

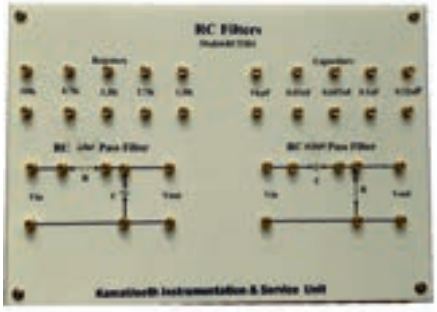
(a)



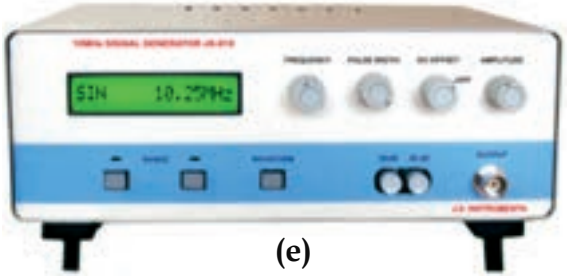


(c)

(d)



(b)



(e)

Experiment setup consists:
a) Active filter boards
b) Passive filter board
c) Set of patch cord
d) Power supply
e) Signal generator

Specifications:

a) Active filters
IC-741 Op-amp based
Components: Externally mountable resistors and capacitors
Circuit biassing: Externally
Input: Signal Generator 1 MHz
Output: Connected to CRO/DSO
Circuits Boards: 3 - Low pass, High pass and Band pass filters

b) Passive Filters
Components: Built in set of resistors and capacitors
Circuits Board: 1 - Low Pass and High Pass

c) Patch cords
Connectors: 2mm patch cords

d) Power supply
connected using split power supply
Output: ±12 V/1 A DC

e) Signal generator
Frequency: 1 Hz to 1 MHz
Display: Frequency & Waveform
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: <30 W
Amplitude: 0 to 20 V variable
Waveforms: Sine, square and triangular

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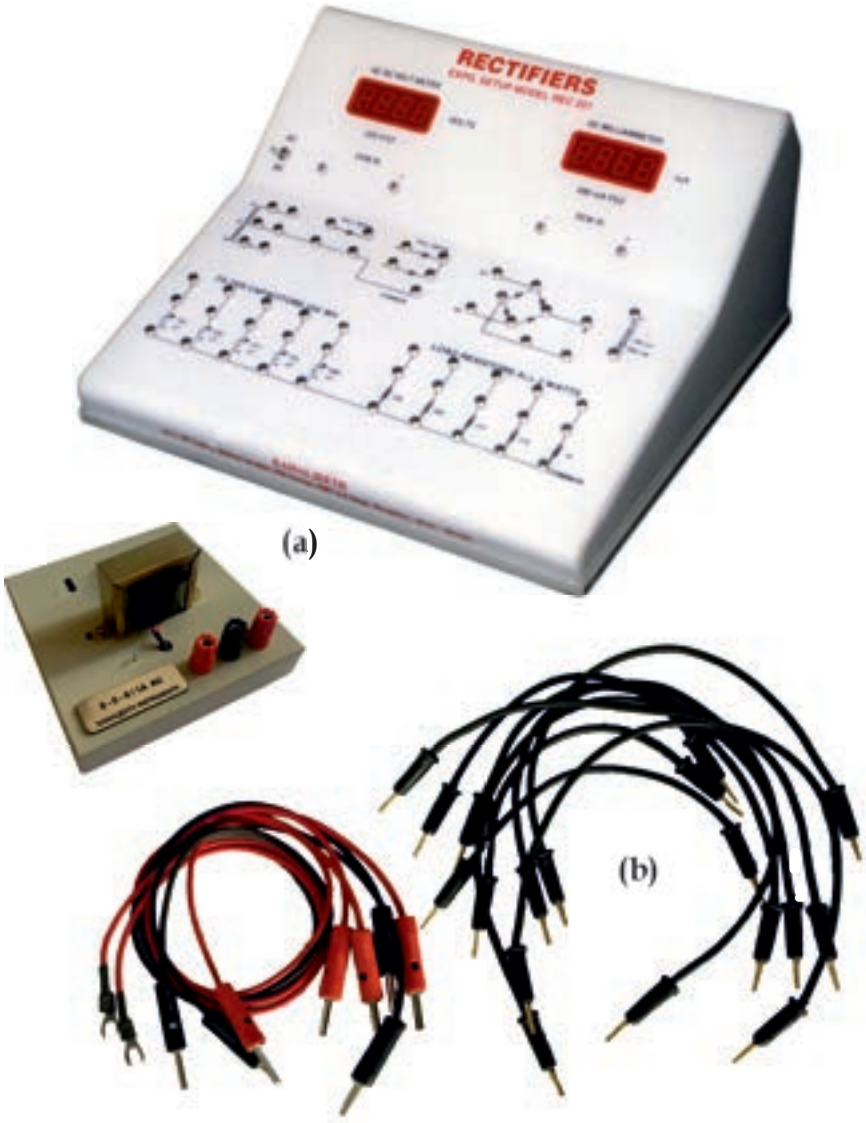
Experiment(s):

1. Realisation of half wave bridge rectifier and its output with filter(s)
2. Realisation of full wave bridge rectifier and its output with filter(s)
3. Realisation of bridge rectifier and its output with filter(s)

(For more details, procedure & manual visit: www.kamaljeeth.net)



Experiment setup consists:

a) Rectifiers kit

b) Centre tapped transformer

c) Set of patch cord

Specifications:

Voltmeter: Digital AC/DC voltmeter
Display: 3½ digit, LED
Range: 20 V
Resolution: 0.1 V
Current meter: Digital DC current meter
Display: 3½ digit, LED
Range: 200 mA
Resolution: 0.1 mA
Circuits of half wave, full wave and bridge rectifier
Components: Set of known value load resistors, set of filter capacitors and two unknown resistors
Power supply: Selectable voltage
5 V (DC) or 12 V (DC)
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: <30 W
Cabinet: Acrylic body, aluminium bottom

b) Transformer: External
Output: 6-0-6/1A

b) **Patch cords**
Set of standard 2 mm patch cords of different lengths with spare cords

RESISTIVITY OF A WIRE

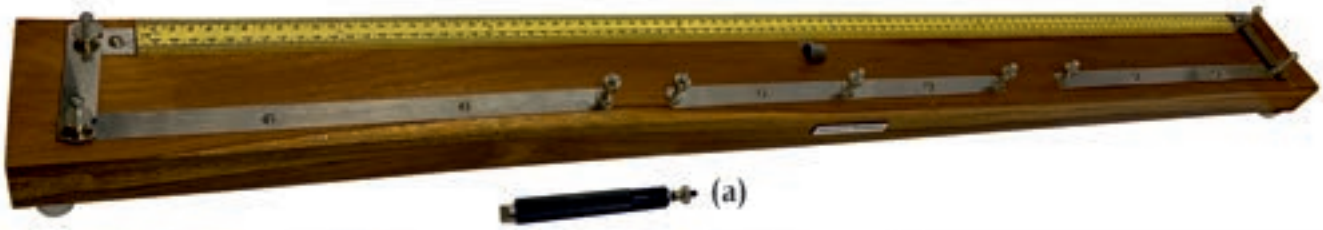
Experiment(s):

1. Determination of resistivity of a wire

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-14, No.2, Page-129

Experiment setup consists:
a) Teak wood meter bridge
b) Power supply
c) Ammeter
d) Voltmeter
e) Rheostat
f) Patch cords

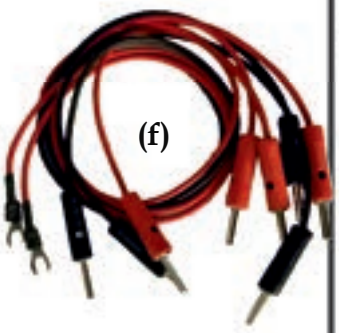


(a)

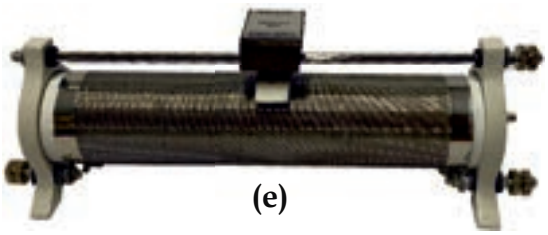
(b)

(c)

(d)



(f)



(e)

Specifications:

a) Teak wood meter bridge
Material: Teak wood
Length: 1 m
Connectors: Brass with zinc coating
Test sample wire: Nichrome
b) Power supply
Battery eliminator
Regulated output: 1.2, 2, 4, 6, 8, 10 & 12 V
c) Ammeter
Range: 0 - 2 A
Resolution: 0.02 A
d) Voltmeter
Range: 0 - 10 V
Resolution: 0.1 V
e) Rheostat
Tube length: 300 mm
Contact: Spring loaded copper blades
Resistance wire: Nichrome
Terminals: 3 (X-0-Y)
Max. resistance: 100 Ω
f) Patch cords
Set of standard required patch cords

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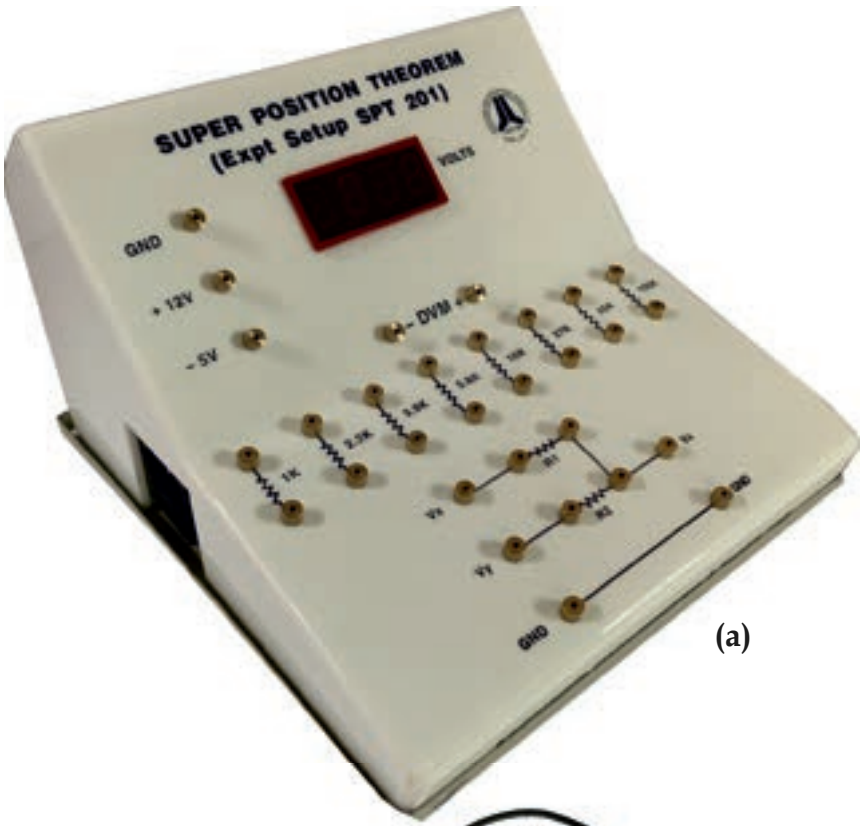
Experiment(s):

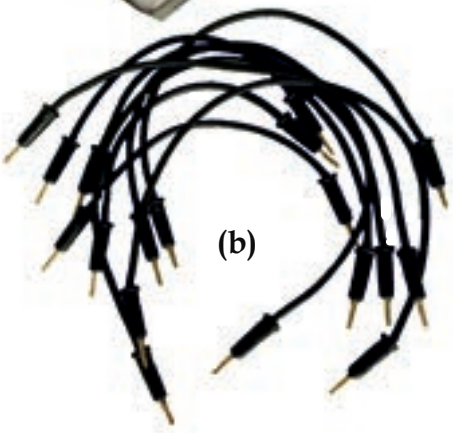
1. Verification of super position theorem

(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal



(a)



(b)

Experiment setup consists:

a) Super position theorem kit

b) Set of patch cord

Specifications:

a) Super position theorem kit
Voltmeter: Digital DC voltmeter
Display: 3½ digit, LED
Range: 20V
Resolution: 0.1V
Components: Set of known value built in resistors
Power Supply: Selectable voltage, +12V DC or -5V DC Regulated
Connectors: 2mm Patch Cords
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power Consumption: <30W
Cabinet: Acrylic body, aluminium bottom

b) Patch cords
Set of standard 2 mm patch cords of different lengths with spare cords

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Model: TNT-201/520

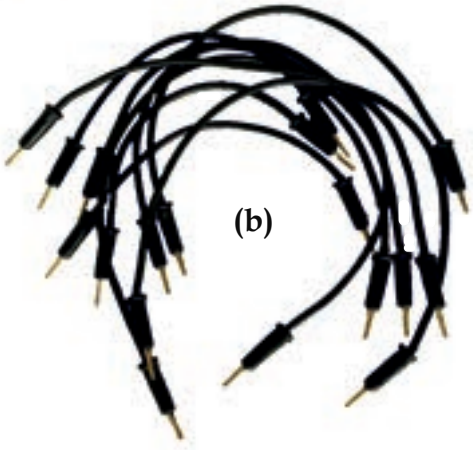
THEVNIN's & NORTON's THEOREM

Experiment(s):

1. Verification of Thevnin's theorem
2. Verification of Norton's theorem

(For more details, procedure & manual visit: www.kamaljeeth.net)

(a)



(b)

Experiment setup consists:

a) Thevnin's & Norton's theorem kit

b) Set of patch cord

Specifications:

a) Thevnin's & Norton's theorem kit
Current meter: Digital DC current meter
Display: 3½ digit, LED
Range: 20 mA
Resolution: 0.01 mA
Components: Set of known value resistors for load resistance
Power supply: Selectable voltage
+5V DC or +12V DC
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: <30 W
Cabinet: Acrylic body, aluminium bottom

b) Patch cords
Set of standard 2 mm patch cords of different lengths with spare cords

ELECTRICITY

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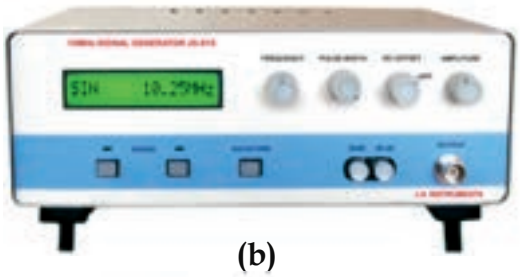
Experiment(s):

1. Realisation of transistor amplifier in CE configuration
2. Realisation of transistor amplifier in CC configuration

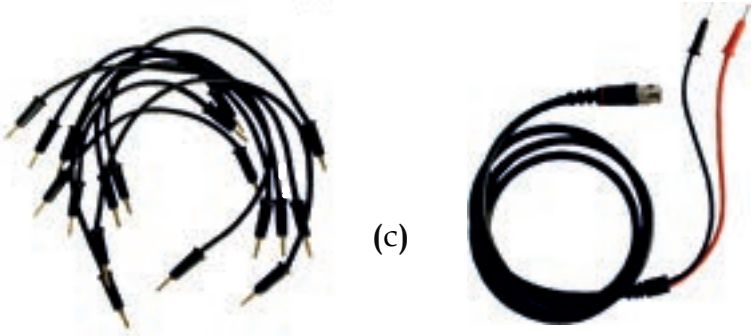
(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-13, No.3, Page-213

(a)



(b)



(c)

Experiment setup consists:

a) Transistor amplifier kit
b) Signal generator
c) Set of patch cord

Specifications:

a) Transistor amplifier kit
Voltmeter: Digital DC voltmeter
Display: 3½ digit, LED
Range: 20 V
Resolution: 0.1 V
Current meter: Digital DC current meter
Display: 3½ digit, LED
Range: 200 mA
Resolution: 0.1 mA
Components: Set of known value resistors and set of two unknown resistors
Power supply: Selectable voltage
5V DC or 12V DC
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: <30 W
Cabinet: Acrylic body, aluminium bottom

b) Signal generator
Frequency: 1 Hz to 1 MHz
Display: Frequency & Waveform
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power Consumption: <30 W
Amplitude: 0 to 20 V variable
Waveforms: Sine, square and triangular

c) Patch cords
Set of standard 2 mm patch cords of different lengths with spare cords

TRANSISTOR AS A SWITCH

Experiment(s):

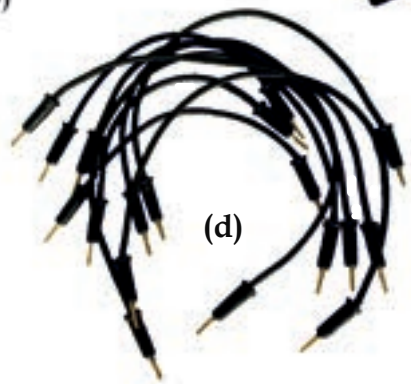
1. Understand the working of a transistor and use it as switch

(For more details, procedure & manual visit: www.kamaljeeth.net)

(a)

(b)

(c)



(d)

Experiment setup consists:

a) Transistor as a switch board

b) Power supply

c) Digital voltmeter

d) Set of patch cords

Specifications:

a) Transistor as a switch board
Components: Built-in with potentiometer
Transistor: Externally mounting type
Output: Via LED

b) Power supply
Regulated DC power supply
Voltage: 5V/1A DC
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: <20 W

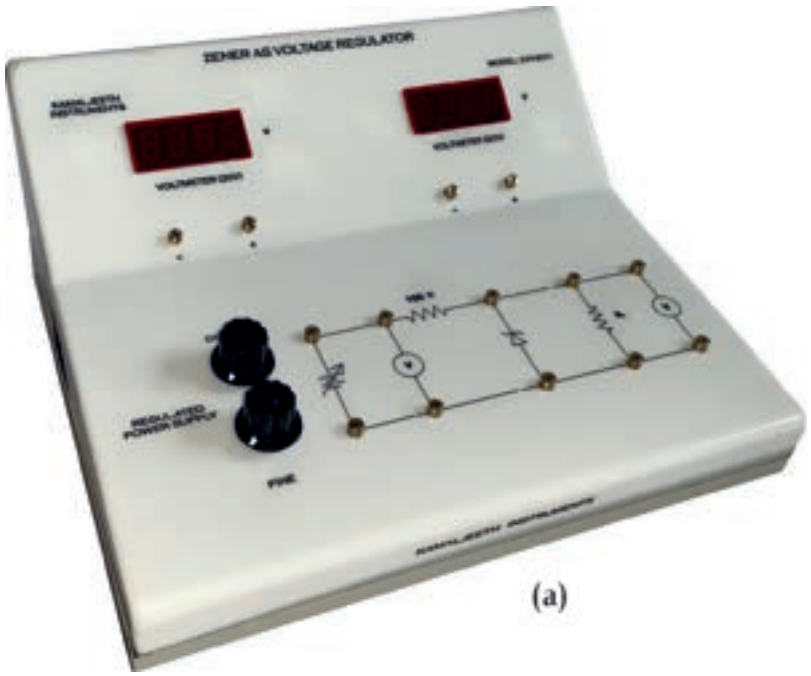
c) Digital DC voltmeter
Display: 3½ digit, LED
Range: 20 V
Resolution: 0.01 V

d) Patch cords
Set of standard 2 mm patch cords of different lengths with spare cords

Experiment(s):

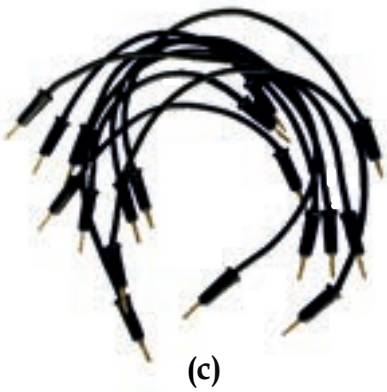
1. Understand the working of zener diode and use it as voltage regulator

(For more details, procedure & manual visit: www.kamaljeeth.net)



(a)

(b)



(c)

Experiment setup consists:

a) Zener diode as voltage regulator kit
b) Set of zener diodes
c) Set of patch cords

Specifications:

a) Zener diode as voltage regulator kit
Voltmeters: Digital DC voltmeter (2 nos)
Display: 3½ digit, LED
Range: 20 V
Resolution: 0.01 V
Power Supply: Regulated variable voltage 0-20V DC with coarse and fine controls
Components: Built in fixed load resistance

b) Zener diodes
Set of 4 different breakdown voltages
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power Consumption: <30 W
Cabinet: Acrylic body, aluminium bottom

b) Set of diodes
Breakdown voltage 3.6V, 5.1V, 9.1V and 12V

c) Patch cords
Set of standard 2 mm patch cords of different lengths with spare cords

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Model: DVM-201/600

DIGITAL VOLT METER

For more details & manual visit: www.kamaljeeth.net

Model	Range (DC)	Resolution
DVM-301/01	0-20V	0.01V
DVM-301/02	0-2V	0.001V
DVM-201/03	0-2000mV	1mV
DVM-201/04	0-200mV	0.1mV
DVM-201/05	0-20mV	0.01mV
DVM-201/06	0-2mV	0.001mV
DVM-201/07	0-200µV	0.1µV
DVM-301/08	0-200V	0.1V
DVM-1229/09 Multi-Range	0-200mV, 0-2V 0-20V	0.1mV 0.001V 0.01V
DVM-194/10 For Diode Char. Expt.	0-200mV, 0-200µV	0.1mV 0.1µV

Common Specifications:

Range: See table below
Resolution: See table below
Input resistance: 10M Ω
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: <20 W
Cabinet: Acrylic body, aluminium bottom
Connectors:
BTI-15/ 4 mm banana socket
Dimensions: 180 mm x 150 mm x 200 mm

Model	Range (AC)	Resolution
DVM-201/11	0-20V	0.01V
DVM-201/12	0-2V	0.001V
DVM-201/13	0-200mV	0.1mV
DVM-201/14	0-20mV	0.01mV
DVM-1229/15 Multi-Range BW-200KHz	0-200mV, 0-2V 0-20V	0.1mV 0.001V 0.01V

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DIGITAL CURRENT METER

Model: DCM-301/601

Common Specifications:

Range: See table below
Resolution: See table below
Input resistance: <0.1 Ohms
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power Consumption: <20W
Cabinet: Acrylic body, aluminium bottom
Connectors:
BTI-15/ 4mm Banana Socket
Dimensions: 180 x 150 x 200 mm

Model	Range (DC)	Resolution
DCM-301/01	0-20A	0.01A
DCM-301/02	0-2A	0.001A
DCM-301/03	0-2000mA	1mA
DCM-301/04	0-200mA	0.1mA
DCM-301/05	0-20mA	0.01mA
DCM-301/06	0-2mA	0.001mA
DCM-301/07	0-200µA	0.1µA
DCM-301/08	0-200A	0.1A
DCM-301/09 Multi-Range	0-20mA 0-200mA 0-2A	0.01mA 0.1mA 0.001A
DCM-301/10 For Diode Char. Expt.	0-200mA, 0-200µA	0.1mA 0.1µA

Model	Range (AC)	Resolution
DCM-301/11	0-20A	0.01A
DCM-301/12	0-2000mA	1mA
DCM-301/13	0-200mA	0.1mA
DCM-301/14	0-20mA	0.01mA
DCM-301/15 Multi-Range BW-200KHz	0-20mA 0-200mA 0-2000mA	0.1mV 0.001V 1mA

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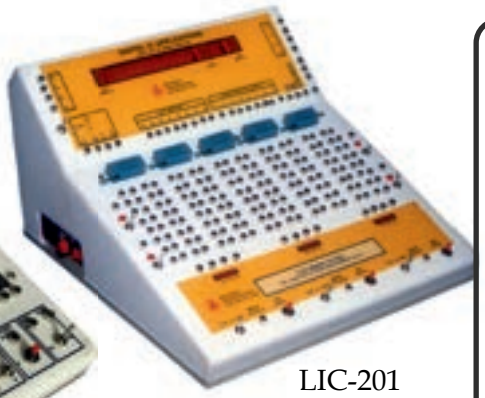
DIGITAL TRAINER KITS

DIC-201



LIC-201

General Specifications:

Rated Input: 220 V/50 Hz
or 110 V/60 Hz

Power consumption: <30 W

Cabinet: Acrylic with metal base

High-low voltages: 5 & 0

Connectors: 2 mm-2 mm brass pin with 6/9/12 inch wire lengths

LGT-1912

FAS-2004

Model	Specifications
DIC-201	BCD & CA display, LED logic monitors (8), mono & clock pulse, with breadboard suitable for all logic circuits
LIC-201	CD & CA display, LED logic monitors, mono & clock pulse (3), with IC ZIF socket suitable for all logic circuits
LGT-1912	Basic logic gate experiments suitable for construction of basic gates using universal gate ICs
FAS-2004	Construction of half/full adder and substracter using logic ICs with logic monitors (4) and High-low inputs (4)

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RESISTOR, INDUCTOR & CAPACITOR BOXES

Model: DXB-201/603

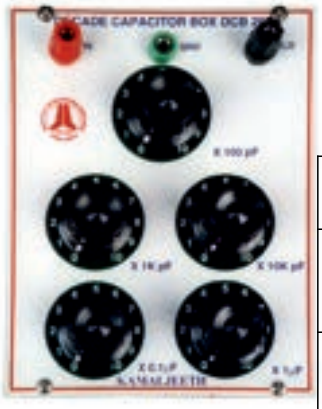
Specifications:

a) Resistance box - Dial type
Dial: x0 to x10 (in each dial)
Output: 4 mm banana pin
Any decade value available on request
Enclosure: Powder coated metal box

b) Resistance box - Plug type
Plug: Brass keys
Output: U-clip type
Enclosure: Wooden

c) Capacitance box - Dial type
Dial: x0 to x10 (in each dial)
Output: 4 mm banana pin
Any decade value available on request
Enclosure: Powder coated metal box

d) Inductance box - Dial type
Dial: x0 to x10 (in each dial)
Output: 4 mm banana pin any decade value available on request
Enclosure: Powder coated metal box



Model	Type	Range
DRB-201/01	Resistance	1Ω
DRB-202/02	Resistance	100Ω
DRB-203/03	Resistance	1KΩ
DRB-204/04	Resistance	10KΩ
DRB-205/05	Resistance	100KΩ
DRB-206/06	Resistance	1MΩ
DRPB-207/07	Plug type Resistance Box	0.1 to 1Ω
DRPB-207/08		1 to 10Ω
DRPB-207/09		1 to 100Ω
DRPB-207/10		1 to 1KΩ
DRPB-207/11		1 to 10KΩ

Model	Type	Range
DCB-204/	Capacitance	100pF-1.11μF
DCB-205/	Capacitance	100pF-11.11μF
DCB-206/	Capacitance	10pF-11.11μF
DIB-204/	Inductance	100μH-1.11H
DIB-205/	Inductance	100μH-11.11H
Single value dome	L/C/R	Any fixed value

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Model: LB-301/604

RHEOSTAT

Common Specifications:

Tube length: 150 mm - 300 mm

Contact: Spring loaded copper blades

Base: Cast iron

Resistance wire: Nichrome

Terminals: 3 (X-0-Y)

Max. current: 5A

Max. resistance: 5K Ω

Resistance	Max. Current	Model
10 Ω	5 A	LB-301/232/1
100 Ω	2.5 A	LB-301/232/2
200 Ω	1.2 A	LB-301/232/3
500 Ω	0.6 A	LB-301/232/4
1000 Ω	0.5 A	LB-301/232/5
2000 Ω	0.3 A	LB-301/232/6
5000 Ω	0.2 A	LB-301/232/7
Customized	0.1 A to 5 A	LB-301/232/C

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FIXED OUTPUT POWER SUPPLIES (WITHOUT DPM)

Model: FPS-240/605

LAC-200

DAC-200

Common Specifications:

Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Output: See table below
Socket: 5 A with fuse
Cabinet: Metal
Ripple factor: < 1 mV PP at full load
Line regulation: 1%
Metres: No
Mains cord: 2 Pin/3 Pin

FVP-301

WCC-200

RPS-104/1

TRS-5012

SON-201

MEL-201

SOL-35

Type	Output	Model
Electronic Daniel	DC 1.08V	DAC-200
Electronic Laclanche Cell	DC 1.46V	LAC-200
Electronic Western Cadmium Cell	DC 1.008V	WCC-200
Logic Gate	DC 5V/1A	FVP-301
Sonometer	AC 6V/1A	SON-201
Melde's Power Supply	AC 6V/3A	MEL-201
Split Power Supply	DC ±12V	RPS-104/1
Split Power Supply	DC ±15V	RPS-104/2
Transformer	AC 6-0-6 1A	TRS-5012
Sodium Vapour Lamp	Suitable for 35W	SOL-35

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Model: VSP-200/606

VARIABLE VOLTAGE POWER SUPPLY (WITHOUT DPM)

Common Specifications:

Rated Input: 220 V/50 Hz
or 110 V/60 Hz

Socket: 5A with fuse
Cabinet: Metal
Ripple factor: < 1 mV PP at full load
Line regulation: 1%
Metres: No
Mains cord: 3 Pin

Type	Output	Model
Battery Eliminator (Regulated DC Output)	1.2, 2, 4, 6, 8, 10 & 12V	BEE-201
Battery Eliminator (Unregulated DC Output)	1.2, 2, 4, 6, 8, 10 & 12V	UBE-301
Battery Eliminator (AC Output)	1.2, 2, 4, 6, 8, 10 & 12V	BEA-401
Discharge tube high voltage power supply	1-5KV Contentiously variable	DTP-2010
IC Regulated Power supply	0-5V/1A 0-15V/1A	DCP-201
Dual tracking split power supply	0 to ±15 V	DTP-2001

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VARIABLE VOLTAGE POWER SUPPLY (WITH METER)

Model: RPS-201/607

Common Specifications:

Rated Input: 220 V/50 Hz
or 110 V/60 Hz

Socket: 5 A with fuse

Cabinet: Metal

Ripple factor: < 1 mV PP at full load
Line regulation: 1%

Metres: 3-1/2 digit LED display

Mains Cord: 3 Pin

Type	Output	Model
IC regulated dual output CV-CC power supply	0-30V/1A or 0-30V/2A	RPS-203/253
IC regulated CV-CC power supply	0-30V/1A or 0-30V/2A or 0-30V/3A	RPS-101/251
IC regulated power supply	0-12V/1A or 0-15V/1A or 0-24V/1A	DCP-202/248
Arc spectrum and electromagnet Variac based power supply	0-75V/5A	EPS-1205/237

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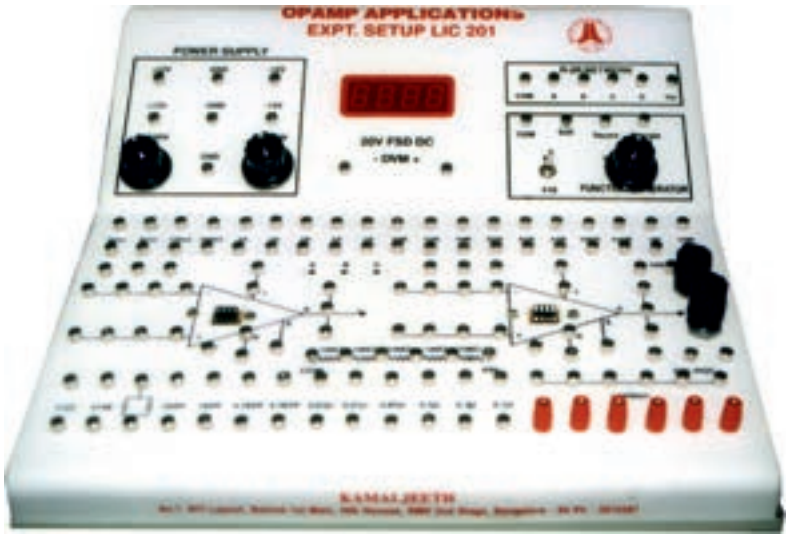
OPAMP APPLICATIONS

Experiment(s):

1. Opamp Application - Low pass filter, high pass filter, band pass filter, inverting and non-inverting amplifier, integrator, differentiator, construction of phase shift oscillator, wein-bridge oscillator shift

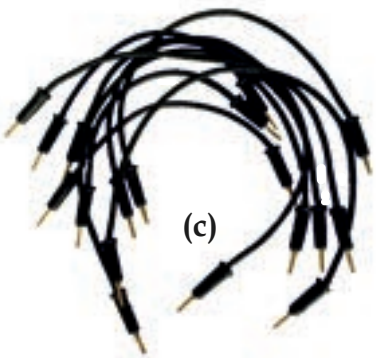
(For more details, procedure & manual visit: www.kamaljeeth.net)

Reference : Lab Experiments Journal vol-13, No.3, Page-223



(a)

(b)



(c)

Specifications:

a) Opamp applications kit
Opamp: IC 741 (2 nos)
Power supply: Fixed ±12 V
Variable: 0 to +12V and
0 to -12V
Signal generator: upto 200 KHz
Sine, square, triangle waveform
Amplitude: Variable
Meter: Digital DC voltmeter
Display: Digital DC 3½ digit, LED
Range: 20 V
Resolution: 0.01 V
Resistors: Set of in built resistors from 82Ω to 1MΩ
Load resistors: 0Ω to 500Ω in steps of 100Ω
Continuous variable resistance: 0 to 100Ω and 0 to 1KΩ
Filters: Set of 10 different electrolytic capacitors
Set of zener diodes: 2 nos
p-n junction diode set: yes
Common nodes: Yes (2 nos)
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Cord/Socket: 3 pin
Power Consumption: <30 W
Cabinet: Acrylic body, aluminium bottom

b)IC 741: 2 nos

c) Patch cords:
Set of standard 2mm patch cords of different lengths with spare cords

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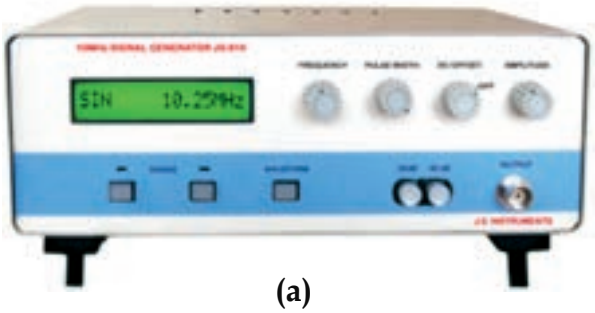
3 years manufacturing warranty



(a)

(b)

(c)

Specification for JS-900 series

Range: See table below
Waveform: Sine, triangular, square and pulse
Display: Waveform & frequency
DC offset: Yes
Output impedance: 50 Ω
Accuracy: 0.1% > 100 Hz
Output: BNC connector
Max. amplitude: Max 20V P-P
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power Consumption: <20 W
Cabinet: Metal

Type	Output	Model
Signal generator 1MHz	Upto 1 MHz	JS-901 (a)
Signal generator 2MHz	Upto 2 MHz	JS-902 (a)
Signal generator 3MHz	Upto 3 MHz	JS-903 (a)
Signal generator 10MHz	Upto 10 MHz	JS-910 (a)
Fixed frequency oscillator	1KHz, variable amplitude	JS-900/ FFO (b)
Digital tunning fork oscillator	Fixed amplitude, Variable frequency	JS 263/ TFG

For customized range and new additions visit: www.kamaljeeth.net

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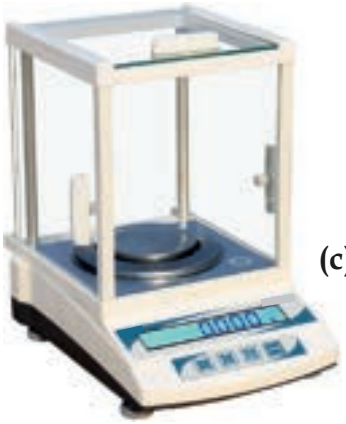
Model: DBAL-0121/610

WEIGHING SCALE/ DIGITAL BALANCE

(a)

(b)



(c)

(d)

Model	Specifications
a) Pocket balance	Max. weight: 200 g Resolution: 0.01 g (10 mg) Power: Battery operated AAAx2 Pan size: 50 mm x 50 mm External calibration: No Additional features: Tare, backlight
b) General purpose laboratory balance	Max. weight: 6000 g Resolution: 0.1 g (100 mg) Power: Mains operated and rechargeable battery backup up to 4 hrs External calibration: Yes Pan size: 180 mm x 180 mm
c) High precession/ Jeweller's balance	Max. weight: 200 g Resolution: 0.001 g (1 mg) Power: Mains operated and rechargeable battery backup up to 4 hrs External calibration: Yes Pan size: 80 mm Additional features: Connect to printer, built-in 2 axis spirit level
d) Ultra high precession balance/ Gouy balance	Range: 220 g Resolution: 0.0001 g (0.1 mg) Pan movement: ± Z axis -Z axis movement via detachable hook typically used for hanging mass experiments Enclosure: sealed from all sides Calibration: Yes, through provided standard weight (optional) Pan size: 90 mm Additional features: Connect to printer, built-in 2 axis spirit level Rated Input: 220 V/50 Hz

Note: Model number varies depending on the range and resolution and other required features

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(For more details, procedure & manual visit: www.kamaljeeth.net)

a) SMB-1708/1 - Student spectrometer routine quality 6"

b) SMB-1708/2 - Brass movements superior spectrometer 6"

c) SMB-1708/3 - High resolution spectrometer 7"

Spectrometers

a) Student spectrometer routine quality - 6 inch

b) Brass movements superior spectrometer - 6 inch

c) High resolution 7 inch spectrometer

Specifications:

Scale: 6" diameter (Stainless steel) - SMB-1708/1
Scale: 6" diameter (Brass) - SMB-1708/2
Scale: 7" diameter (Stainless steel) - SMB-1708/3
Base: Cast iron with levelling screw
All moving parts made of stainless steel for SMB-1708/1 and SMB-1708/3
All moving parts made of brass for SMB-1708/2
Collimator with adjustable slit
Horizontal axis alignment for collimator: Yes
Horizontal axis alignment for telescope: Yes
Centre table: Height adjustable with provision for prism and grating holder
Telescope with user changeable cross wire and eyepiece

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TIMERS AND CLOCKS

DSC-201

TIM-501

OSC-1019

FF-1903

Product	Specification	Model
Digital stop clock	Range: 0-999.9 sec Resolution: 0.1 sec Time measuring: Manual start/stop Reset: Manual	DSC-201
Digital time interval clock	Range: 0-999.9 sec Resolution: 0.1 sec Time measuring: Based on inputs from start sensor and stop sensor Reset: Automatically on interrupting start sensor Applications: Conservation of energy experiment, viscosity measurement, atwood machine, etc	TIM-501
Oscillation measuring clock	Range: 0-999.999 sec Resolution: 0.001 sec Time measuring: Based on input from single start/stop sensor Reset: Manual Counts number of oscillation and time period for the oscillation Applications: Simple pendulum, bar pendulum, Kater's pendulum, etc.	OSC-1019
Free fall interval clock/ Point to point interval clock	Range: 0-99.999 sec Resolution: 0.001 sec Time measuring: Based on inputs from start sensor and stop sensor Reset: Automatically on interrupting start sensor Applications: Free fall, Law of conservation of energy, Velocity measurement experiments	FF-1903

For customized range and new additions visit: www.kamaljeeth.net

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DTI-301/436

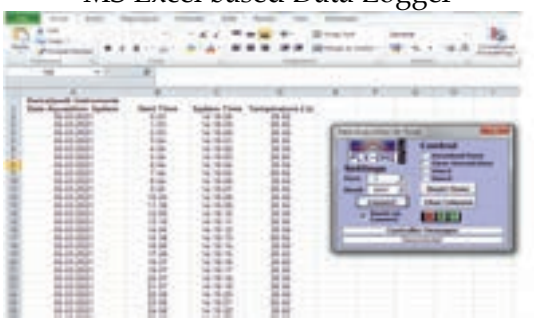
Single Channel

6 Channels

TC-0981/437

DA-2104/438

MS Excel based Data Logger



For customization mail us at labexperiments@kamaljeeth.net

DTI-301/436
Specifications:

Range: 200 °C
Resolution: 0.1 °C
Channels: 1 channel
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: <20 W
Cabinet: Acrylic body, aluminium bottom
Display: 7 Segment LED

TC-0981/437
Specifications:

Range: 150 °C
Resolution: 1 °C
Channels: 6 channel
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power consumption: <20 W
Cabinet: Metal
Display: LCD
Time: up to 9999 sec then will reset

DA-2104/438
Specifications:

Range: 150 °C
Resolution: 0.01 °C
Channels: 1 to 6 channel(s)
Interval: Selectable from 1 sec to 30 mins
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Display: Direct log to M.S Excel
Works on Windows 7 or above OS with at least 20 MB free space
Requires one USB port

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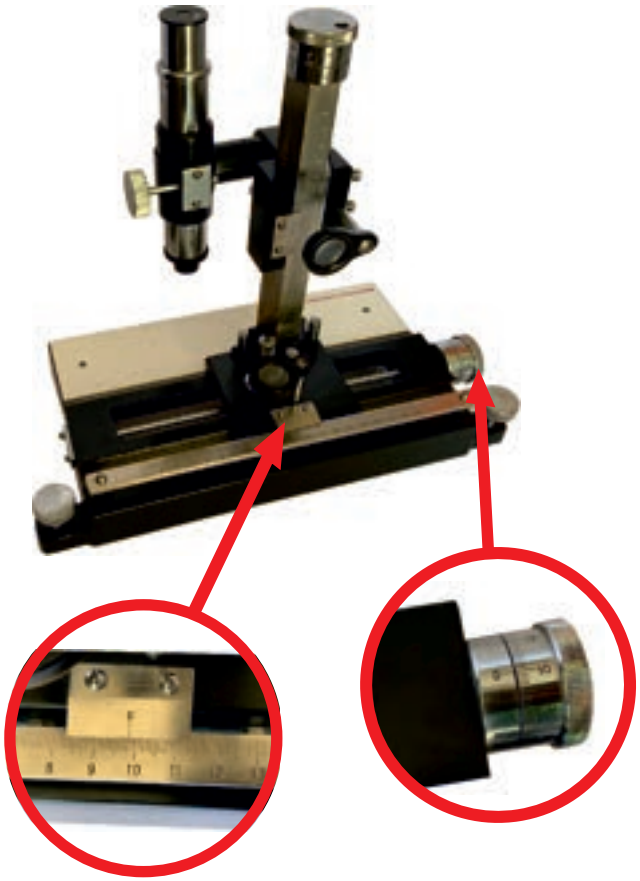
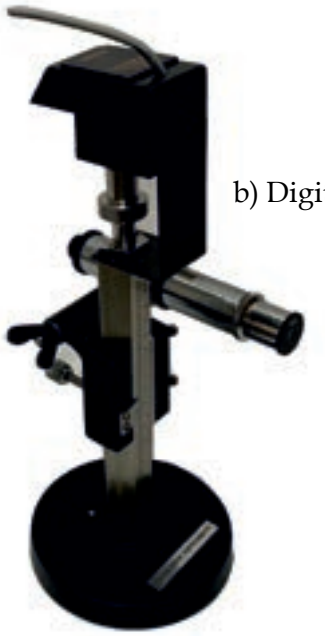
TRAVELLING MICROSCOPE

a) Travelling microscope



Screw Gauge type measurement for ease of reading



b) Digital travelling microscope

Specifications:

a) Travelling microscope
Number of axis: 2
(x and z axes)
Base: Cast iron
Moving parts: Brass
Focus: Adjustable
x- axis movement: 180 mm
Measurement: Screw gauge type
Least count: 0.01 mm
Free movement: Yes
Magnifier: Yes
z- axis movement: 140mm
Measurement: Screw gauge type
Least count: 0.01 mm
Free movement: Yes
Magnifier: Yes

b) Digital travelling microscope
Number of axis: 1 (Vertical)
Base: Cast iron
Moving parts: Brass
Focus: Adjustable
Free movement: 150 mm
Micrometer movement: 10 mm
Least count: 0.01 mm
Display: LCD
Detector: Resistive type
Rated Input: 220 V/50 Hz
or 110 V/60 Hz
Power Consumption: <20 W

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FREQUENTLY ASKED QUESTIONS

1. We wish to know the price of the apparatus, where can we find the prices?
You may request by mailing us your Institute/college/university address. We will mail you the complete price list.

2. We wish to procure few apparatus, how do we order?
Mail us your requirements with your Institute/college/university address with pincode, we will identify your **nearest Dealer** and a "Quotation" will be sent to you.

3. There are no dealers nearby, what should we do?
Kamaljeeth Instruments will supply to any place within India. However, only through our channel partners and dealers we supply internationally.

4. What is the warranty on the product?
We provide a standard 3 year warranty on all products except for bulbs, lamps, glassware, trading items like thermometers, kettles, compass, etc.

5. Who does the installation and demonstration?
Most Kamaljeeth products come with manuals, however if you insist for installation and demo you may raise a request by mail and our **Installation and Service Engineer** will contact you.
Please note: Installation and demo is chargeable and is waived off the total order value is more than Rs 1,00,000 or $ 2,500 (outside India).

6. What if the product fails within warranty period?
In the rare event of product failure, please mail us the details of apparatus and approximate date of purchase. Our after-sales team or the dealer will guide you further.

7. Should we send the apparatus to your factory or will your engineer visit us for service?
Both options are available. Depending on the urgency, availability of service engineer and complexity of the apparatus, we may choose either of the options. This will be communicated via mail.

8. What are the service charges?
Up to 3 years from the date of invoice, service is free of charge. However, one way fright to our factory in Bangalore has to be borne by you . You may also contact your dealer who has supplied the equipment. Post 3 year warranty period, service is chargeable.

9. How soon can you supply?
Most apparatus are "made to order" and we have a standard dispatch time of 21 days from the date of order. However, most common products are kept in stock and can be dispatched immediately.

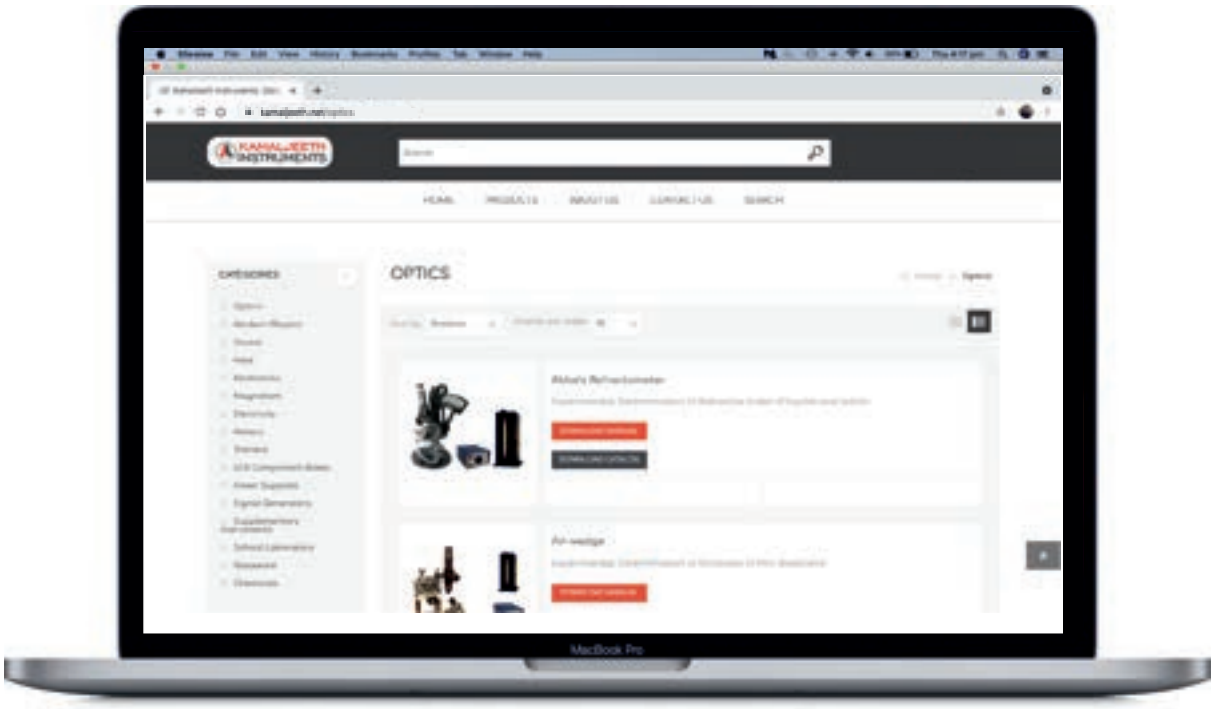
10. Can we customize the apparatus?
Yes, we do provide customization if the product quantity qualifies the minimum criteria.

11. I need a custom apparatus for my Research. Can you fabricate?
Yes, we can help you to design and fabricate the required apparatus if it's in our scope of manufacturing. However, the design charges are applicable.

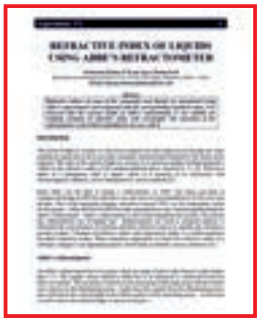
12. We have lost the manuals of the apparatus, what do we do?
We are always available for technical support. You may mails us at **labexperiments@kamaljeeth.net**.
We will be able to provide soft copy of the manual, send videos (if available) and resolve any issue over video conference.

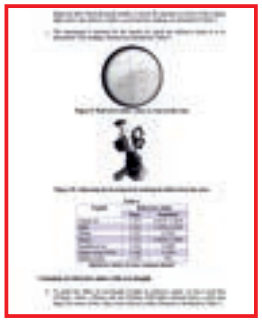
13. We have a feedback, how do we share it?
We strongly believe in continuous improvement and your feedback is treated with utmost respect and priority. Please share your valuable feedbacks at **labexperiments@kamaljeeth.net**

You can download the individual catalogs and manuals from our website **www.kamaljeeth.net**



Click on DOWNLOAD MANUAL or DOWNLOAD CATALOG option for the relevant product

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+91 - 8105508888

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