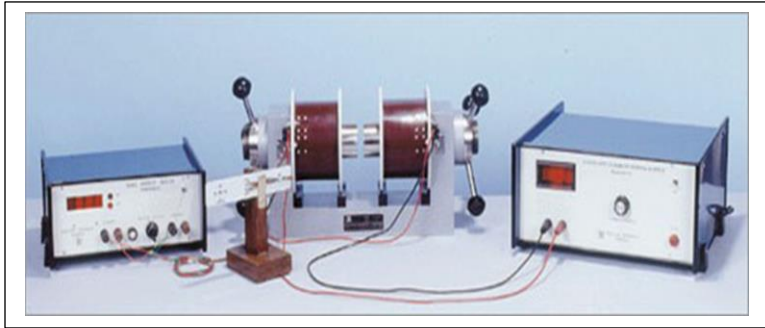
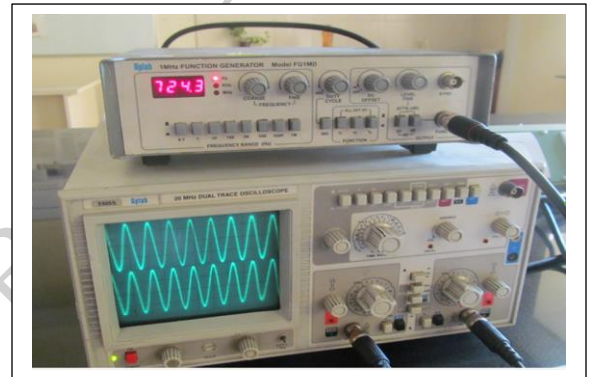


# PRODUCT GUIDE

## PHYSICS AND ELECTRONICS LAB TRAINING MODULES



### Total Lab Concept



## DELTA ELECTRONICS

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[delta\\_etx@rediffmail.com](mailto:delta_etx@rediffmail.com)

## **TESTING MEASURING AND LABORATORY INSTRUMENTS**

Analog oscilloscopes

Digital storage oscilloscopes

Spectrum analyzers

Logic analyser (pc based)

Function generator/frequency counter/

Soldering stations

DC regulated power supplies signal channel

Multi meter /clamp meter

Decade capacitance box

Decade inductance box

Decade resistance box



Fig. Cathod Ray Oscilloscope

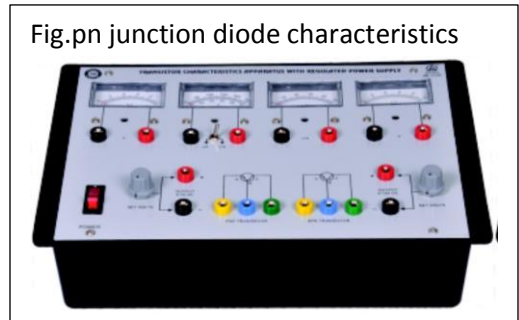


fig. AF Function Generator

## **ELECTRONICS LAB TRAINING MODULES**

- DE - 001 PN Junction Diode Characteristics
- DE - 002 Zener Diode Characteristics
- DE - 003 Experimental Set-Up For Plotting CB Characteristics
- DE - 004 Zener Diode As A Shunt Regulator
- DE - 006 Voltage regulator using IC LM 317
- DE-007 Characteristics of Diode & LED
- DE-008 JFET Characteristics
- DE - 046 MOSFET Characteristics
- DE - 047 IGBT Characteristics
- DE - 051 SCR Characteristics
- DE -052 Diac Characteristics
- DE - 053 Triac Characteristics
- DE - 054 UJT Characteristics
- DE - 055 Transistor as a switch
- DE-056 Study of Half - Wave rectifier
- DE-056 Center - Tapped Full wave Rectifier
- DE-075 Bridge Type Full wave Rectifier

Fig.pn junction diode characteristics



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| DE-076   | Logic Gate Trainer using IC,s               |
| DE-077   | Binary To Gray Code Converter               |
| DE - 100 | Basic Logic Gates using Diode & Transistors |
| DE - 101 | Gray To Binary Code Converter               |
| DE-102   | Half Adder Using Logic Gates                |
| DE - 103 | Half Subtractor Using Logic Gates           |
| DE - 103 | Half Subtractor Using Logic Gates           |
| DE - 104 | Full Subtractor Using Logic Gates           |
| DE - 105 | Full Adder Using Logic Gates                |
| DE - 106 | Demorgan's Theorem                          |
| DE - 107 | Boolean Expression using logic gates        |
| DE - 108 | BCD to 7 Segment Decoder using IC 7447      |
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| DE - 123 | 1:8 Demultiplexer Using IC 74138            |
| DE - 124 | 1:16 Demultiplexer Using IC 74154           |
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| DE - 126 | D & T Flip – Flop                           |
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| DE - 134 | J-K Flip-Flop Using NAND Gate               |
| DE - 137 | Controlled Invertor using Ex-OR Gate        |
| DE - 138 | Decade Counter Using IC 7490                |
| DE - 140 | Up-Down Counter using IC 7476               |
| DE - 155 | Mod N (2 to 9) counter using IC 7490        |
| DE-156   | 4 Bit Shift Register Using IC74194          |
| DE-157   | Arithmetic & logic unit using IC 74181      |
| DE - 165 | Study Of Kirchoff's Law(KCL & KVL)          |
| DE - 200 | Superposition Theorem                       |
| DE - 201 | Norton's Theorem                            |

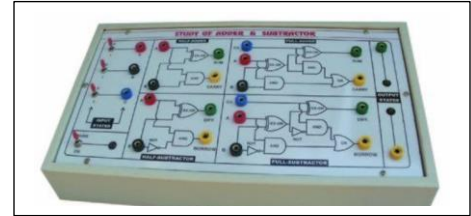


Fig. Adder/Subtractor Trainer



fig. e/m by Thomson method



Fig. Network Theorem

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|          |                                             |
|----------|---------------------------------------------|
| DE -202  | Thevenin's Theorem                          |
| DE -203  | Maximum Power Transfer Theorem              |
| DE -204  | Reciprocity Theorem                         |
| DE -205  | Tellegan's Theorem                          |
| DE -206  | Millman's Theorem                           |
| DE -207  | RLC Series Resonance Circuit                |
| DE -208  | RLC Parallel Resonance Circuit              |
| DE-209   | Two Port Network Parameter                  |
| DE-210   | Charging & Discharging of Capacitor         |
| DE-211   | Bridge Circuits                             |
| DE 252   | Wheatstone Bridge                           |
| DE-300   | Non-Inverting Op-Amp using IC 741           |
| DE-301   | Inverting Op-Amp using IC 741               |
| DE-302   | Op-Amp Parameter & Application Trainer      |
| DE-303   | Inverting/Non inverting Op-Amp using 741    |
| DE-306   | Op-Amp as Adder using IC 741                |
| DE - 307 | Op - AMP Buffer Using IC 741                |
| DE - 308 | OP - AMP Subtractor Using IC 741            |
| DE-309   | Op - AMP Comparator Using IC 741            |
| DE - 310 | Integrator Using OP - AMP IC 741            |
| DE - 311 | Diffreniator Using OP - AMP IC 741          |
| DE - 312 | I to V & V to Converter                     |
| DE-313   | Op - AMP Schmitt Trigger Using IC 741       |
| DE - 314 | Zero Crossing Detector                      |
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| DE - 316 | IC 555 As AstableMultibibrator              |
| DE - 317 | IC 555 As Bistable Multivibrator            |
| DE - 318 | IC 555 As Monostanble Multivibrator         |
| DE - 319 | Second Order Low - Pass Butterworth Filter  |
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| DE - 321 | Wide Band Pass Filter                       |
| DE-322   | Op-Amp as Clipper                           |
| DE-323   | Op-Amp as Clammper                          |
| DE-324   | Square Wave Generator using Op-Amp 741      |

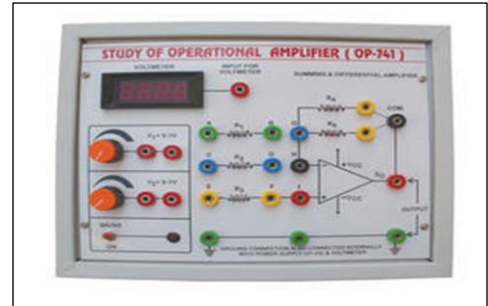


Fig.Study Of Operational OP-Amp

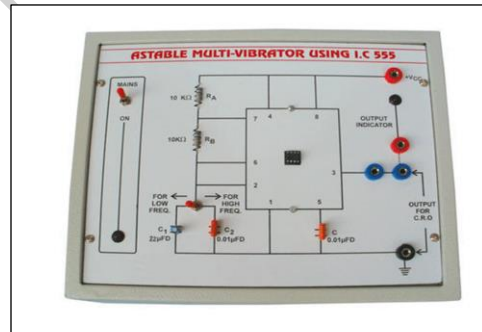


fig. Astable Multivibrator

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|           |                                            |
|-----------|--------------------------------------------|
| DE-325    | Instrumentation Amplifier using Op-Amp 741 |
| DE-326    | Astable Multivibrator using Op-Amp 741     |
| DE-327    | Monostable Multivibrator using Op-Amp 741  |
| DE-328    | Bistable Multivibrator using Op-Amp 741    |
| DE-329    | Phase shift oscillator using Op-Amp 741    |
| DE-330    | Trangular Generator using Op-Amp 741       |
| DE -331   | VCO using 565                              |
| DE-332    | Sample & Hold Circuit                      |
| DE-400    | Single Stage CE Amplifier                  |
| DE-401    | Single Stage CB Amplifier                  |
| DE-402    | Single Stage CC Amplifier                  |
| DE-403    | Two Stage RC Coupled Amplifier             |
| DE-404    | FET Amplifier                              |
| DE -405   | Single Tunned Amplifier                    |
| DE - 500  | Analog To Digital To Analog Converter      |
| DE - 500  | Astable Multivibrator Using Transistor     |
| DE - 500  | Differntiator Using Op- Amp IC 741         |
| DE - 501  | Clipper& Clamper Circuit                   |
| DE - 502  | Astable Multivibrator using Transistor     |
| DE - 503  | Monostable Multivibrator Using Transistor  |
| DE - 504  | Bistable Multivibrator Using Transistor    |
| DE - 505  | RC Integrator & Differentiator             |
| DE - 506  | UJT As Relaxation Oscillator               |
| DE - 507  | Digital To Analog Converter                |
| DE-508    | RC Phase Shift Oscillator                  |
| DE-511    | Colpitt Oscillator                         |
| DE -512   | Hartley Oscillator using Transistor        |
| DE -551   | Study of RAM                               |
| DE -600   | Solar Cell Characteristics Apparatus       |
| DE -601   | Energy Band Gap Apparatus                  |
| DE-602    | Ohms Law Apparatus                         |
| DE-603    | Thermister Charateristics Apparatus        |
| RPS 501F  | DC Power Supply 5V ,1A                     |
| RPS 1201F | DC Power Supply +- 12V, 1A                 |
| RPS 1501F | DC POWER SUPPLY +- 15V, 1A                 |

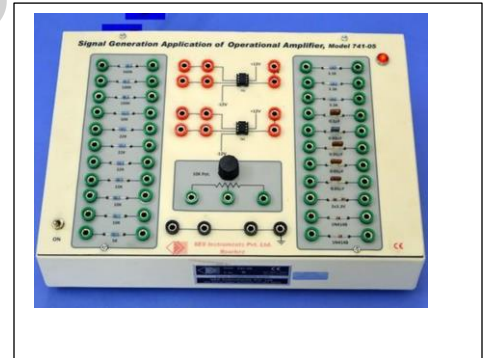


fig. Gate Trainer Kit



Solar Cell Characteristics

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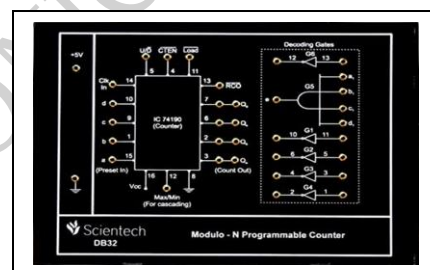
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## **DIGITAL ELECTRONICS LAB TRAINING MODULES**

- Logic Gates using Six TTL IC's (6 in 1)
- RTL Logic Gates (5 in 1)
- Basic Logic Gate using Discrete Components (7 in 1)
- Digital Logic Trainer (Logic Gates, Boolean Identities & Demorgan's Theorems)
- Verification of truth tables of Logic Gates using Universal Gates
- Pulse/ Clock Generator using NAND Gate
- 4 Bit Adder & Subtractor Circuits using IC 7483
- Digital Full Adders & Subtractors using NAND Gates
- Flip Flops using NAND Gates & TTL IC's
- Decade / Modulo-N Counter
- 4 Bit Counters (Synchronous & Asynchronous)
- 4 Bit Shift Registers
- Encoder & Decoder Circuits
- 16 to 1 line Multiplexer & 1 to 16 Line Demultiplexer
- Encoder/Multiplexer
- Decoder/ DeMultiplexer
- RAM Circuit using IC 7489
- Parity Generator/Checker with Bakelite Front Panel
- 4 Bit Digital Comparator
- 4/8 Bit Analog to Digital Converter
- 4 Bit A/D Converterfig.dsb/ssb transmitter &
- 4/8 Bit Digital to Analog Converter
- 4 Bit D/A Converter
- Transfer Characteristics of TTL and TTL Schmit Trigger Inverter
- TTL-CMOS, CMOS-TTL Interfacing
- Arithmetic/Logic Unit (ALU)
- TTL IC Characteristics Apparatus
- CMOS IC Characteristics Apparatus
- Digital Lab Trainer (with Bread Board)



4 bit D/A Converter

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## **BASIC AND ADVANCE COMMUNICATION LAB TRAINING MODULES**

- Amplitude Modulation & Demodulation
- Frequency Modulation and Demodulation
- Pulse Amplitude Modulation & Demodulation
- Pulse Width Modulation & Demodulation
- Pulse Position Modulation & Demodulation
- PAM/PPM/PWM Modulation & Demodulation
- Phase Modulation and Demodulation
- Frequency Shift Keying Modulation & Demodulation
- Amplitude Shift Keying Modulation & Demodulation
- Phase Shift Keying Modulation & Demodulation
- Pulse Code Modulation and Demodulation
- Delta Modulation and Demodulation
- Adaptive Delta Modulation and Demodulation
- Single Side Band Modulation & Demodulation
- Sample & Hold Circuit using Op-Amp
- Detection of FM using Phase locked loop (PLL)
- Balanced Modulator/DSB-SC (DSB-SC Amplitude Modulation and Demodulation)
- Frequency Division Multiplexer & Demultiplexer
- QAM Modulation & Demodulation
- Frequency Modulation & Demodulation
- Delta, Adaptive Delta and Delta Sigma Modulation & Demodulation
- TDM Pulse Code Modulation Transmitter
- TDM Pulse Code Modulation Receiver
- Data Formatting and Carrier Modulation Transmitter
- Data Formatting and Carrier Demodulation Receiver
- Analog Signal Sampling & Reconstruction
- TDM Pulse Amplitude Modulation & Demodulation
- 8 Bit Variable Data Generator for Model



fig Modulation & Demodulation kit



Fig.Delta Modulation&Demodulation



fig.TDM

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## **PHYSICS LAB EXPERIMENT SETUP**

- Measurement of High Resistance using Substitution Method
- Lissajous Figure Apparatus
- Stefan Constant Apparatus
- Dielectric Constant Apparatus (Solid & Liquid)
- Hall Effect Experiment (Complete Setup)



Hall Effect Experiment

- Fourier Analysis Kit
- Measurement of Susceptibility of Paramagnetic Solution by Quinck's Tube Method
- Heat Efficiency of an Electric Kettle
- Choke Characteristics Apparatus
- Inductance Measurement (using Impedance at Different Frequencies)
- Determine the Height of Tower with the Help of Sextant
- GM Counter Experimental Setup



GM Counter Experimental Setup

- Determine The Ballistic Constant of a Ballistic Galvanometer (Complete Setup)
- Determine The ECE of Copper using Tangent Galvanometer (Complete Setup)
- Determine the Wavelength of Sodium Light by Fresnel's Biprism Kit (Complete Setup)

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Page 7

- Determine the Focal Length of Two Lenses by Nodal Slide and Locate the Position of Cardinal Points (Complete Setup)
- Determine of the Specific Rotation of the Cane Sugar Solution with the Help of Polarimeter (Complete Setup)
- Determine the Wavelength of Spectral Lines using Plane Transmission Grating (Complete Setup)
- Determine the Viscosity of a Liquid by Stroke's Method (Complete Setup)
- Determine the Frequency of AC Mains by Electrical Vibrator



Electrical Vibrator

- Determine the Wave Length of Sodium Lamp by Newton Ring Method (Complete Setup)
- Determine Magnetic Field using Stewart and Gee's Apparatus (Complete Setup)
- Determine the Velocity of Ultrasonic Waves by using a Crystal (Complete Setup)
- Laser Experimental Setup with Diode Laser (Complete Setup)
- Laser Experimental Setup with He-Ne Laser (Complete Setup)
- He-Ne Laser with Power Supply (Complete Setup)
- High Resistance by Leakage Method (Complete Setup)
- Thermo electric e.m.f. with temperature for a copper iron thermo couple, by means of a potentiometer (Complete Setup)
- Calibration of Voltmeter using Potentiometer (Complete Setup)



Calibration of Voltmeter using Potentiometer

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- Determine Young's modulus's, modulus of rigidity and poisson's ratio of the material of a given wire by Searle's dynamical method (Complete Setup)
- Determine the Frequency of a Tuning Fork with the help of Sonometer
- Determine the Frequency of A.C. mains by means of a Sonometer (Complete Setup)
- Determine the Dispersive Power of the Material of the Prism for Violet & Yellow Colors of Mercury Light with the Help of Spectrometer (Complete Setup)
- Determine the Resolving Power of Telescope (Complete Setup)
- Determine the Wave Length of Sodium Lamp by Michelson Interferometer (Complete Setup)
- Determine the Refractive Index of Liquid using Diode Laser (Complete Setup)
- Determine the Malus Law using Diode Laser (Complete Setup)
- Determine the Brewster Angle using Diode Laser (Complete Setup)
- Determine the Refractive Index of Prism using white light & Spectrometer (Complete Setup)
- Carrey Foster Bridge with Four Gap (Complete Setup)



Carrey Foster Bridge with Four Gap

- Determine Thermal Conductivity using Lee's Disc Apparatus (Complete Setup)
- Sodium Vapour Lamp 35 Watt fitted in Box with Transformer
- Sodium Vapour Lamp 55 Watt fitted in Box with Transformer
- Mercury Vapour Lamp 80 Watt fitted in Box with choke

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## **GENERAL PHYSICS LABORATORY INSTRUMENTS**

- Digital D.C. Micro voltmeter
- Digital Nano ammeter
- Digital Pico ammeter
- High Voltage Power Supply
- True RMS A.C. Milli voltmeter
- Electromagnet
- Constant Current Power Supply
- Digital Gauss meter
- Hand Held Gauss meter
- PID Controlled Oven
- Travelling Microscope



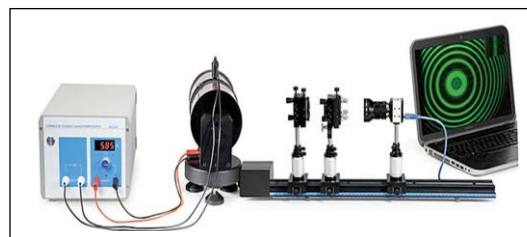
Gauss meter



Traveling Microscope

## **PHYSICS AND MATERIAL SCIENCE LAB EXPERIMENTS**

- X-Ray Diffraction Simulation Experiment
- Magnetic Field Measurement Apparatus
- Study of Dielectric Constant and Curie Temperature of Ferroelectric Ceramics
- Frequency Dependence of Dielectric Constant
- Dielectric Constant of Liquids
- Dielectric Constant of Solids & Liquids
- Dielectric Measurement Setup
- Zeeman Effect Experiment
- Millikan's Oil Drop Experiment
- e/m Experiment
- Planck's Constant by Photoelectric Effect
- Determination of Planck's Constant by means of LED's
- Frank Hertz Experiment
- Ionisation Potential Set-up
- Resistivity of Semiconductors by Four Probe Method at Different Temperatures and Determination of the Band-gap
- Four Probe set-up for measuring the resistivity of very low to highly resistive samples at temperatures upto 200°C with PID controlled oven



X-Ray Diffraction Simulation

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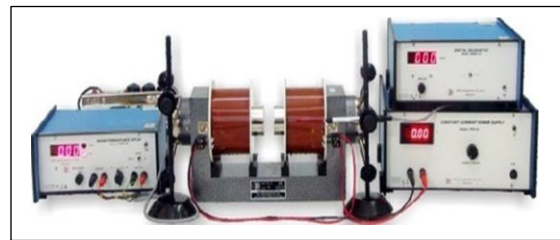
Page 10

- a) Four Probe Arrangement with built-in thermocouple sensor
- b) Standard Samples: Ge, Si and Aluminium
- c) Oven Unit (upto 200C),
- d) High Performance PID Controller
- e) D.C. Micro voltmeter
- f) Constant Current Source
- g) Low Current Source



Four Probe set-up

- Four Probe measurement set-up for wide range of resistivity samples from -190°C to 200°C temperatures
  - a) Four Probe Arrangement with built-in thermocouple sensor
  - b) Standard Samples: Ge, Si and Aluminium
  - c) PID Controller Oven cum Cryostat unit (-190C to 200C)
  - d) D.C. Micro voltmeter
  - e) Constant Current Source
  - f) Low Current Source
- Four Probe Set-up for Mapping the Resistivity of Large Samples
  - a) Four Probe Arrangement with X-Y movement and vernier scales
  - b) Standard Samples: Ge, Si and Aluminium
  - c) D.C. Micro voltmeter
  - d) Constant Current Source
  - e) Low Current Source
- Measurement of Magneto resistance of Semiconductors
  - a) Four Probe Arrangement
  - b) Sample: Ge Crystal
  - c) Hall Probe Multipurpose Stand
  - d) Magneto resistance Setup
  - e) Electromagnet
  - f) Constant Current Power Supply
  - g) Digital Gauss meter



Magneto Resistance of Semiconductors

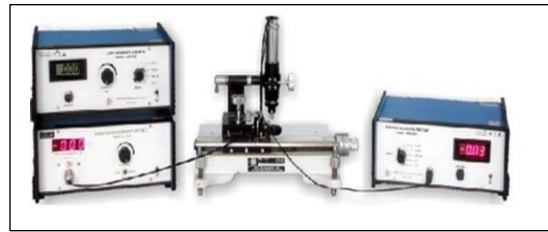
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 Page 11

- Measurement of Magneto resistance in Different Samples
  - a) Four Probe Arrangement suitable for MRX-Research

- b) Sample: Ge Crystal (n-type)
- c) Hall Probe Multipurpose Stand
- d) Constant Current Source
- e) Digital D.C. Micro voltmeter
- f) Electromagnet
- g) Constant Current Power Supply
- h) Digital Gauss meter



Four Probe Arrangement

- Measurement of Magneto resistance in Bismuth

- a) Four Probe Arrangement
- b) Sample: Bismuth
- c) Hall Probe Multipurpose Stand
- d) Constant Current Source
- e) Digital D.C. Micro voltmeter
- f) Electromagnet
- g) Constant Current Power Supply
- h) Digital Gauss meter



Digital D.C. Micro voltmeter

- Two Probe Method for Resistivity Measurement of Insulators (upto  $10^{13} \text{W.cm.}$ ) at Different Temperatures
  - a) Two Probe Arrangement with built-in thermocouple sensor
  - b) Test Sample: 1G resistance (not for experiment)
  - c) Oven Unit (upto  $200^\circ\text{C}$ )
  - d) High Performance PID Controller
  - e) High Voltage Power Supply
  - f) Digital Pico ammeter
- Two Probe Method for Resistivity Measurement of Insulators (upto  $10^{13} \text{W.cm.}$ ) at Different Temperatures with USB based computer interface
  - a) Two Probe Arrangement with built-in thermocouple sensor
  - b) Test Sample: 1G resistance (not for experiment)
  - c) Oven Unit (upto  $200^\circ\text{C}$ )
  - d) High Performance PID Controller with computer interface
  - e) High Voltage Power Supply
  - f) Digital Pico ammeter

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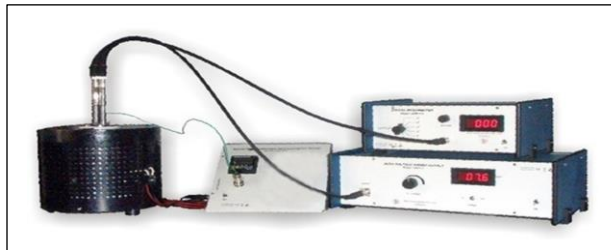
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- g) Computer Aided Measurement Module, SES CAMM, complete with suitable software
- High Temperature Two Probe Set-up (Suitable for temperature upto 600°C, including highly stable PID Controller, 1500V EHT Power Supply and high resolution Picoammeter)
  - a) Two Probe Arrangement with built-in thermocouple sensor
  - b) Test Sample: 1G resistance (not for experiment)
  - c) Oven Unit (upto 600°C)
  - d) High Performance PID Controller
  - e) High Voltage Power Supply
  - f) Digital Pico ammeter



Two Probe Set-up

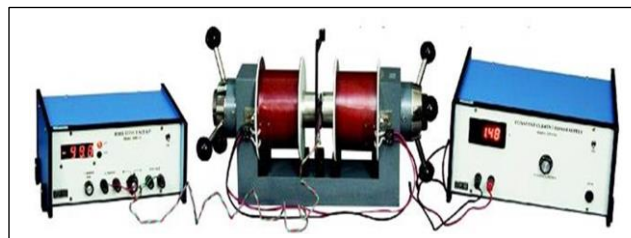
- High Temperature Two Probe Set-up with USB based computer interface facility (Suitable for temperature upto 600°C, including highly stable PID Controller, 1500V EHT Power Supply and high resolution Pico ammeter)
  - a) Two Probe Arrangement with built-in thermocouple sensor
  - b) Test Sample: 1G resistance (not for experiment)
  - c) Oven Unit (upto 600°C)
  - d) High Performance PID Controller with computer interface
  - e) High Voltage Power Supply
  - f) Digital Pico ammeter
  - g) Computer Aided Measurement Module, SES CAMM, complete with suitable software
- Electron Spin Resonance Spectrometer
- NMR Experiment, NMR-01
- Study of Thermo luminescence of F-centres in Alkali Halide Crystals
  - a) Experimental set-up for creating the Thermo luminescence (Oven with power supply, digital thermometer, samples, black box etc.)

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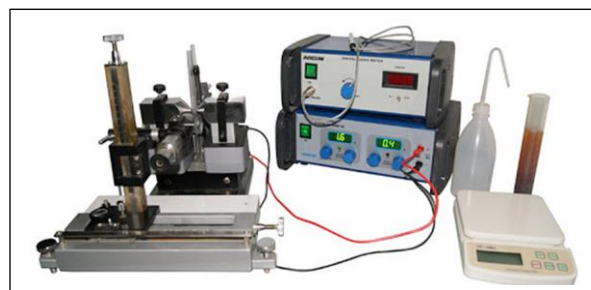
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- b) For Measuring of Luminescence Intensity
    - i. Photomultiplier Tube
    - ii. PMT Housing with biasing circuit
    - iii. EHT Power Supply
    - iv. Digital Nano ammeter
- Thermo luminescence Irradiation Unit (Irradiation unit suitable for irradiating alkali halide samples for thermo luminescence experiment)
- Hall Effect Experiment
  - a) Hall Probe (p and n type)
  - b) Hall Probe Multipurpose Stand
  - c) Hall Effect Set-Up
  - d) Electromagnet
  - e) Constant Current Power Supply
  - f) Digital Gauss meter
- Dependence of Hall Coefficient on Temperature
  - a) Hall Effect Setup
  - b) Hall Probe (Ge : p-type) with a small oven and a Thermocouple
  - c) Hall Probe Multipurpose Stand
  - d) Electromagnet
  - e) Constant Current Power Supply
  - f) Digital Gauss meter
- Apparatus for the Measurement of Susceptibility of Paramagnetic Solution by Quinck's Tube Method
  - a) Quinck's tube
  - b) Q-Tube multipurpose Stand
  - c) Sample :  $\text{MnSO}_4 \cdot \text{H}_2\text{O}$
  - d) RD Bottle
  - e) Mixing Bottle
  - f) Electronic Balance
  - g) Travelling Microscope
  - h) Electromagnet
  - i) Constant Current Power Supply
  - j) Digital Gaussmeter



Hall effect



Quinck's Tube Method

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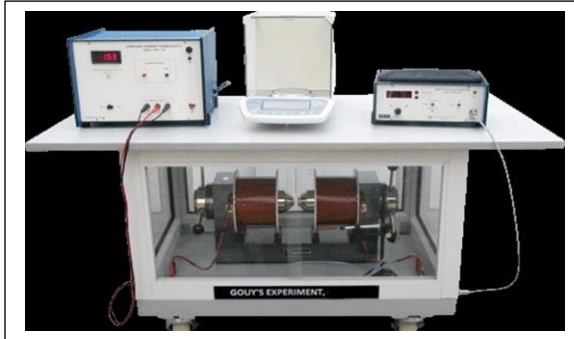
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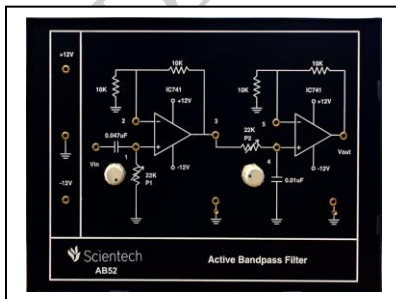
- Apparatus for the Measurement of Susceptibility of Solids by Gouy's Method
- Magnetic Hysteresis Loop Tracer
- Study of the energy band-gap and diffusion potential of P-N Junctions
- Diode Characteristics & Boltzman Constant



Susceptibility of Solids by Gouy's Method

## **FILTER CIRCUITS**

- T' type Passive Low Pass, High Pass, Band Pass & Band Stop filters
- M-Derived 'T' type Passive Low Pass & High Pass Filters
- "p" type Passive Low Pass High Pass, Band Pass & Band Stop filter
- Twin-T Active Notch Filter using Operational Amplifier
- Active filters using Operational Amplifier
- Transient Response of RLC Circuit with built-in Square Wave Oscillator
- Cascaded Two Port Network
- "T", "p" & "Bridge T" Type Attenuators
- RC, Low Pass, High Pass, Band Pass & Band Stop Filters



Active Low Pass Filter



Composite High Pass Filter

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## **INSTRUMENTATION AND LAB TRAINING MODULES**

Instrumentation Trainer Using Transducers (Complete with following Experimental study)

Study of LVDT

Study of RTD

Study of Thermocouple

Study of Thermistor

Study of Opto Devices (Photo Diode, Photo Transistor, LDR, Zener, Diode)

Study of Wheatstone Bridge & Instrumentation Amplifier

- Strain Gauge Trainer Kit (with Cantilever Beam)
- LVDT Trainer Kit
- RTD Trainer Kit
- Thermocouple Trainer Kit
- Speed Measurement Module using Photo Electric Sensor
- Speed Measurement Module using Magnetic Sensor
- Inductive Pick Up
- Capacitive Pick Up
- Piezo Electric Transducer
- Hall Effect Sensor
- Pressure Measurement using Strain Gauge
- Load Cell Trainer Kit
- Temperature Sensors Kitfig. Transducer Trainer
- Study of Linear Potentiometer instrument trainer
- Data Logger (Voltage, Current, Temperature & Pressure)



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## **BREAD BOARD TRAINERS**

- Bread Board Trainer with Power Supplies (General Purpose)
- Operational Amplifier Trainer (Bread Board Model)
- Digital Electronics Circuit Trainer (Bread Board Model)
- OP Set of 20 IC's & Instruction Manual for more then 60 Experiments
- Analog Lab Trainer (with Bread Board)
- Digital Lab Trainer (with Bread Board)
- Analog & Digital Lab Trainer (Bread Board Model)
- Amplifier Lab Trainer with Power Supply (with Bread Board)
- Amplifier Lab Trainer with Built in Power Supply, AC Millivoltmeter & Function Generator (with Bread Board)



Fig. Bread board trainer kit.

## **DYNAMIC DEMONSTRATORS & TRAINER**

- Black & White Television Demonstrator ( with 14" CRT)
- Color Television Demonstrator (with 20"CRT)
- Color Television Demonstrator (with 14"CRT)
- Video Compact Disc Player Demonstrator
- Digital Versatile Disc Player Demonstrator
- Stereo Tape Recorder Trainer
- Analog Multimeter Trainer
- Digital Multimeter Trainer
- Analog Fiber Optic Voice Transmission Demonstrator
- CRO Demonstrator (20MHz Dual Channel)
- Function Generator Demonstrator
- FM Radio Receiver Demonstrator



Stereo Tap Recorder

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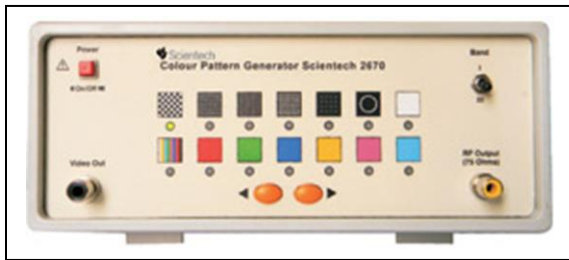
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- Telephone Trainer
- AM Radio Receiver Demonstrator (Two Band)
- UPS Trainer 500 VA
- Video Cassette Recorder Demonstrator
- EPBAX Demonstrator
- Fax Demonstrator
- Walkie Talkie Demonstrator
- Battery Monitoring System
- Washing Machine Trainer (Automatic)
- Washing Machine Trainer (Semi Automatic)
- Microwave Oven Demonstrator
- Two in One Trainer
- AM / FM Radio Receiver Demonstrator
- Pattern Generator (For TV



Fig. LED TV Demonstrator



Colour Pattern Generator for tv



Semi automatic washing machine

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# MICROPROCESSOR & MICROCONTROLLER LAB

- 8031 Microcontroller Training Kit with Inbuilt Power Supply
- 8031 Microcontroller Training Kit with Inbuilt Power Supply (LCD Display,ASCII Keyboard)
- 8085 Microprocessor Training Kit with Inbuilt Power Supply
- 8085 Microprocessor Training Kit with Inbuilt Power Supply (LCD Display,ASCII Keyboard)
- 8086 Microprocessor Training Kit with Inbuilt Power Supply
- 8086 Microprocessor Training Kit with Inbuilt Power Supply (LCD Display,ASCII keyboard)



Fig. Microprocessor Training Kit

## Electric bridges

- Anderson Bridge
- Schering Bridge
- Kelvin Bridge (Industrial))
- Kelvin Bridge (Student)
- Maxwell Inductance Bridge
- Weins Bridge (Capacity Measurementt)

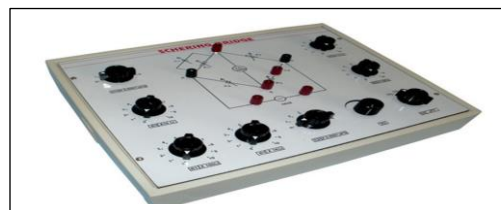


fig. schering bridge

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- Weins Bridge (Frequency Measurement)
- Wheatstone Bridge (Portable)
- Desauty Bridge
- Hay's Bridge
- Owen's Bridge
- Callender and Griffith's Bridge
- Crompton Potentiometer (Complete Setup)



fig. Kelvin Bridge

## **POWER SUPPLIES**

### **DC Regulated Power Supplies Single Channel / Dual Channel**

- Single Output 0 - 30VDC/2 Amps with fixed 5V/3.3V output
- Single Output 0 - 30VDC/5 Amps with fixed 5V/3.3V output
- Single Output 0 - 30VDC/10 Amps
- Single Output 0 - 60VDC/5 Amps
- Single Output 0 - 60VDC/10 Amps (Dual Supply used in series mode)
- Dual Output 0 - +30VDC/2 Amps with fixed 5V/3.3V output
- Dual Output 0 - +30VDC/5 Amps with fixed 5V/3.3V output
- Multiple DC Regulated Power Supply (CH 1: 0-6VDC / 100mA-2Amps, CH 2: 0-32VDC / 100mA-2Amps, CH 3: 0-+15VDC / 100mA-1Amps)



Dual DC Regulated Power Supply

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### **DELTA ELECTRONICS**

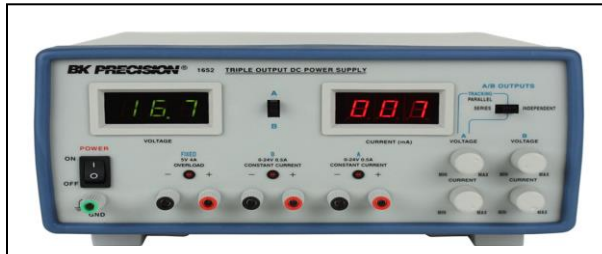
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### Special Purpose Power Supplies

- DC Power supply 0 - 16Volts / 2Amps with One Digital Voltmeter
- Electronic Standard Cell 1.018 VDC
- Fixed Output DC Regulated Power Supply +5VDC/1Amp
- Fixed Output DC Regulated Power Supply +12VDC/1Amp
- Fixed Output DC Regulated Power Supply +12VDC/2Amp
- Fixed DC power Supply 2V/1A, +6V/1A
- Fixed DC Power Supply 2V/1A , 1.018VDC



DC Power Supply

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