

Making Technology Visible



Knowledge Engineering
ISO 9001

ELECTRONICS TECHNOLOGY



LABTECH – the International Technical Educational Company

LABTECH was formed over 30 years ago and is one of the largest Technical and Vocational educational systems designers and manufacturers in the world. Labtech's prime focus is to provide comprehensive 21st century skills infused technical and engineering learning solutions for Vocational Technical Schools, Polytechnics, Universities and Training Institutions. The development of LABTECH has been guided by professional educators from North America, Europe and Asia that have many years of experience in the field of international education.

Our Systems Approach design philosophy of “Making Technology Visible” is based on modular learning platforms and exposing key functional systems so as to clearly demonstrate the underlying technologies. We allow students to get close to technology by adopting a “hands-on” approach to training that combines theory as well as practical experiments. The result of this is that students have a clearer understanding of how technology works and its applications to industry and the work place. Many of our trainers have Fault Insertion systems that simulate common real-world faults with troubleshooting solutions facilitating real hands-on skills. Our Modular educational approach enables us to create systematic integrated solutions for varying syllabus levels, ranging from occupational skills standards and upwards to university degrees in engineering.

LABTECH has developed over 1.000 major training products which form a systematic educational program and we have exported these to over 80 countries worldwide. The technical training systems that LABTECH manufactures are made to International standards of quality and we are ISO 9001 certified in eight areas including educational research and development. LABTECH has a comprehensive R&D department and a sophisticated range of manufacturing equipment. LABTECH can assist training institution or projects by offering a complete service for equipping technology workshops or laboratories in our key technology areas including provision of training systems, educational aids, models, support tools and testing equipment.

Our training manuals are comprehensive teaching and learning guides which are student-centric and oriented for self-studies. The manuals include information on applied theory; related engineering information; set-up & operation; skills focused experiments; schematics & diagrams; along with troubleshooting solutions. We have active cooperative programs with leading educational and industrial institutions within our region who work together with us in our product research and development. Our trainers incorporate the latest technology so that education may keep pace with the changing economy.

Our manufacturing base is strategically located in a Free Trade Zone location on Batam Island nearby Singapore which allows us to easily ship all over the world. We also have marketing and distribution offices in Singapore, Malaysia, Jakarta and Jordan in order to facilitate communications, service support and financial transactions with our customer's world wide. We also have representatives in dozens of countries who act as our local partners on project implementation. Our unique international corporate structure allows us to globally market high quality products and services at reasonable costs.

Industry & Technology Partnerships and Memberships

Labtech has a network of industry and technology partners that enables us to widen our product offerings and better align our objectives with the end result of producing employable skills. Partnering with some of the most innovative technology companies in the world, including Microsoft and Intel. We are also members of ISTE (International Society of Technology in Education), CompTIA (Computing Technology Industry Association), IVETA (International Vocational Education & Training Association), World Didac, and we are the sole international distributor of the highly successful GenYES program for integrating technology in education. This global network makes us uniquely aligned to meet the needs of educational institutions around the globe.



Labtech Electronics Technology

Electronics technology is one of the most rapidly advancing of technologies today. It is the backbone of the ICT and communications revolution which is affecting nearly all segments of industry and human activities. Electronics and communications now are major influencers on work and productivity in many segments and are even changing social convenience, behavior and comfort at home. The proliferation of these technologies is increasing to the point where they are becoming “ubiquitous” or available almost everywhere. For many it has become an indispensable part of their daily lives including work, productivity, music, entertainment, social interaction and family life. As the importance of these devices and technologies grow it is an increasing vital necessity that we produce trained technicians and engineers that know how these devices function, how to integrate them into our activities, how to set them up, manage them, troubleshoot them, solve problems as they arise, fix and repair them. These talents are key to supporting our growing needs to sustainably and effectively use these technologies for our benefit as a society as a whole.

Labtech has developed a series of trainers to assist students in acquiring the skills needed for fulfilling these positions. These trainers have been designed in cooperation with several of the leading electronics manufacturers, together with teacher training experts. Our trainers start by giving the student a solid background in electronic fundamentals and the progress onwards to skill and job oriented training systems. The trainers thoroughly cover topics in mechanism operation, system diagnostics, troubleshooting and fault-finding, repair and routine servicing of these devices. All of our products include a manual which covers the theory as well as practical exercises. Many of our trainers in this product line feature a very useful and unique electronic fault insertion system for the teaching of troubleshooting and testing which aids in the development of Higher Order Thinking Skills (HOTS).

Labtech produces a comprehensive range of Electronics training systems that feature hundreds of trainers and modules which can be arranged in many formats to meet any curriculum. This catalog highlights some of our most popular training systems and platforms which are organized into the categories below.

World Class Technical Training Systems designed for education with quality built-in

Labtech is one of the few companies in the world that has achieved ISO certification for designing, developing and producing educational training systems. This means that our training systems are designed for teaching and learning that match a variety of International settings. They also can be configured or customized for specific customer requirements. The functions of the trainers are designed with the teacher and the student in mind for achieving the desired educational objectives. Our training manuals guide the student through the theory and applied experiments which are formulated to match the learning objectives. We use both project based learning and problem based learning techniques in our experiments in order to deepen the knowledge acquired.

- Comprehensive manuals feature graphic and visual learning materials to aid in student comprehension which contain both theory and practical exercises. Assessments are also included.
- Electronic Trainers have graphic circuit block diagrams which aid the student understanding and diagnostic activities.
- Special Electronic fault insertion system with test points embedded into the circuit diagram for troubleshooting and fault finding.
- Modular design enables trainers to be expanded or inter-connected to other units to form larger complex systems for enhanced training.
- Labtech products use only high quality industrial components and materials from top international brands.
- Ergonomic and attractive design for easy learning and operation.
- Built to last long in tropical and arid environments.
- All major metal parts are powder coated for corrosion protection and durability.
- High quality fiberglass circuit boards with socketed ICs for easy replacement.
- For maintenance purposes, a circuit diagram of the trainer is provided and internal system cables feature number tags.
- 2mm or 4mm safety sockets for student protection and quick assembly of experiments.
- Visible Circuit tracks, so the student can see how the components are connected on each PCB.

Digital TVET Content for Virtual Learning:

- Many items also have optional digital learning resources for computer aided instruction.
- Optional Data Acquisition Systems can facilitate higher level learning.
- 21st Century Learning Platform for blended learning.

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DC OVERLOAD
INDICATOR



SPEAKER



BUZZER
12 VDC



AC POWER



DC POWER



DC POWER



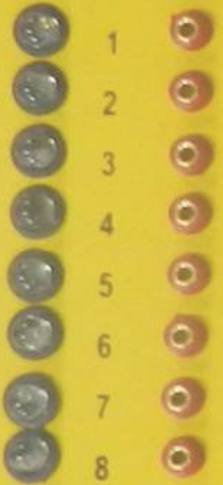
DC POWER



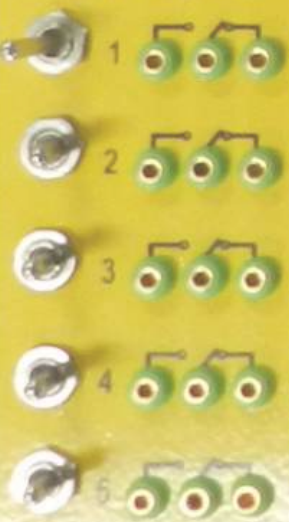
PULSE SWITCH



8 BITS LED



SWITCHES



EFT - ELECTRONICS FUNDAMENTALS

LABTECH

BASIC FIBER TRA
ELECTRONICS I



MODEL: EFT

BASIC ELECTRICITY TRAINER

Model Number: EFT-ELC-1 Plug-in Component Circuit Matrix Trainer

Educational Objectives:

- Modular course covering the fundamentals, concepts, theory and applications of electricity.
- It is designed as a starter course to provide new students with a good solid grounding in this area, which is so important for future studies.
- The basic electricity training program is ideal as one of the first courses for students studying electrical disciplines.
- The Courseware is based upon the text Lab manual "Basic Electricity" by Paul Zbar.
- This manual has gained acceptance around the world as one of the finest texts available today for introductory students.
- It has been developed in cooperation with the Electronics Industries Association (EIA), of the United States and is recommended by them for industrial technician training.
- Fifty-seven experiments are provided which cover basic electrical theory, electric circuits and passive devices in both direct and alternating current.
- The base station provides the power supplies, basic instrumentation and accessories that are required to support the training module boards.



BASIC ELECTRICITY TRAINER PCB MODULAR

Model Number: EFT-ELC-2

Educational Objectives:

- Study of basic electrical and electronics engineering.
- Understanding the fundamentals of electric charge, electric current, electric field, electric potential and electromagnetics.
- Consists of optional modular boards that match the experiments.
- Various experiments cover basic electrical theory, electric circuits and passive devices in both direct and alternating current.
- The base station provides the power supply basic instrumentation and accessories that are required to support the training module boards.
- Theory and experiment manual is approx. 550 pages of content.

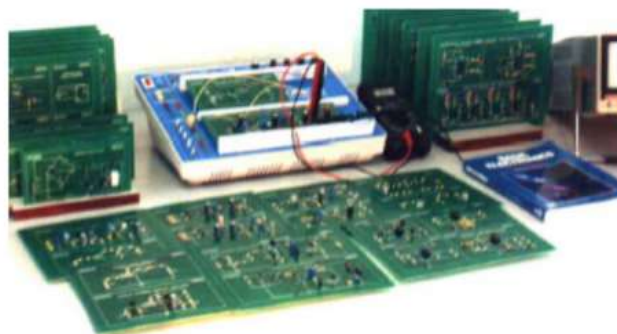


CIRCUIT BASED TRAINING SERIES

Model Number: EFT-ETX

Educational Objectives:

- Circuit based training boards by topic groups to address specific training needs.
- These boards are designed for circuit based training and provide many examples of operational circuits relevant to each series topic.
- The boards are clearly laid out and require the students to connect key parts of the circuit as part of the exercises.
- Each set consists of a series of PCB modules and the related courseware containing the theory and student experiments.
- The modules can be used in the Basic Electronics base station.
- Each module consists of high quality epoxy coated fiberglass printed circuit board with the electronic components mounted on to the surface.
- Each board is printed with a neatly laid out silk-screened schematic circuit diagram showing the circuit construction and operation.



BASIC ELECTRONICS TRAINER

Model Number: EFT-ETX-2

Educational Objectives:

- Study of Basic Electronics, covering the fundamentals, concepts, theory and applications of electronics.
- This course provides new students with a good solid grounding in this area, before going on to specialized studies.
- This basic electronics training program is ideal for basic and intermediate studies in this field.
- Continuation of studies to electrical fundamental topics and applications.
- Consists of modular boards that match the experiments.
- Various experiments are provided that cover basic electronic theory, electronic solid state circuits, semi-conductors, amp circuits and basic digital applications.
- The base station provides the power supplies, basic instrumentation and accessories that are required to support the training module boards.
- Theory and experiment manual is approx. 550 pages of content.



ELECTRICITY AND ELECTRONIC FUNDAMENTALS

Model Number: EFT-BEE

Educational Objectives:

- Modular course covering the concepts, theory and applications of basic electricity and electronics.
- Learning the basic theory and measurements with meters.
- Study of fundamental theorems and laws with basic circuits and principles of magnetism and AC/DC power.
- Familiarization of devices such as covered suction resistors, capacitors, diodes, semiconductors etc.
- Learning various types of circuits such as power supplies, emitter, Amps, Op Amps, Radio Communication.
- Learning the basic concepts of Digital Logic Circuits with some applications for AD and DA conversion, counters and decoders.
- Accommodates modular boards that match the experiments.
- Experiments are contained on a series of PCB type modules which are inserted into the training frame, connection terminals are utilized on the PCB modules thus allowing the student to use the test leads to wire up the experiments and modify the circuits.
- Theory and experiment manual is approx. 700 pages of content.



DIGITAL ELECTRONIC TRAINER

Model Number: EFT-DTL

Educational Objectives:

- Study of concepts, theory and applications for digital electronics.
- Familiarize with the basics of digital technology and goes onto advanced digital topics.
- The level of training is further extended with the applications boards EFT-DTX which allow the student to apply his knowledge to real circuit applications.
- The trainer is available in a variety of configurations as it is in a modular format.
- The modules are provides common facilities that are required for the experiments.
- The base station features a multiple output power supply, clock generator, logic indicator, data switches, toggle switches, push buttons, pulsars and seven segment displays.
- Contains over 40 different types of ICs for the student to explore. This makes this trainer one of the most comprehensive and complete digital training systems on the market today.
- Theory and experiment manual is approx. 300 pages of content.

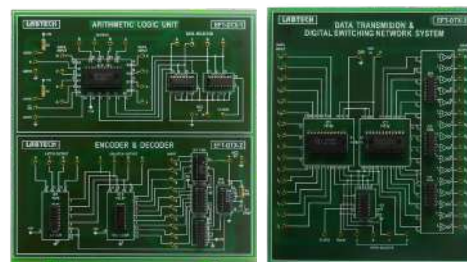


DIGITAL APPLICATION

Model Number: EFT-DTX

Educational Objectives:

- This digital application modules trainer is designed to provide further and more extensive studies about some important digital circuits.
- The trainer consists of a number of individual modules that can be used with the Digital electronics Lab Base Station (EFT-LBS-3).
- Each application circuit module is printed on a special design PCB that shows the circuit layout on top of the PCB (component side).
- The circuit path is able to be observed from the bottom side of the PCB (solder side).
- The students are also expected to take many electronic instrument measurements in order to understand and to study the circuit electrical characteristics and behavior.
- The circuit module is placed on a digital base station that facilitates other requirements for the module such as: digital data switches, digital logic indicator, pulse switches, clock generator, seven segment displays etc.



INDUSTRIAL ELECTRONICS TRAINER

Model Number: EFT-IPX-1

Educational Objectives:

- Study of the fundamentals, concepts, theory and applications of industrial and power electronics that are in common use by industry for control of electrical systems, machines and processes.
- Familiarize with knowledge of Power Electronics Technology such as fundamental understanding of power switching devices, control circuits, three phase systems and applications of power electronics devices.
- The modules are provided for comprehensive training on each particular experiment topic.
- The courseware is based upon the text Lab manual "Industrial Electronics" by Paul Zbar and Richard Koelker.
- It has been developed in cooperation with the Electronics Industries Association (EIA), of the United States.
- All necessary equipments for all experiments such as power supply, switches, meters are installed on the base station.
- The experiments are contained on a series of PCB type modules which are inserted into the base station during use.



BASIC FIBER TRAINER WITH OPTO ELECTRONICS FUNDAMENTALS

Model Number: EFT-OPE-1

Educational Objectives:

- Demonstrate the use of opto electronic devices in a wide range of applications including office copy machines, biomedical instruments, telephone communications, aircraft equipment, consumer products and motor vehicles.
- Applying opto devices to electric power, digital communications.
- Discussions on the operation and application of light emitters, detectors, fiber optic cables and their hardware, along with applicable circuits in power, telecommunications, data transfer, barcode scanning and Contac less switching.
- Features laboratory exercises and theoretical information on how to use modern light emitter/sensor circuits and hardware in information flow circuits.
- Consists of modular PCB instruction units, a base station with power supply, jumper leads and the laboratory manual.
- Most experimental circuits are pre wired, while others must be constructed.



ELECTRONICS APPLICATION BOARDS

Model Number: EFT-EAB

Educational Objectives:

- study of AM Radio
- study of FM Radio
- study of Traffic Light Simulator
- study of Power Supplies Fundamental
- study of Power Supply Troubleshooting
- study of Switching Power Supply
- study of Bread board Module
- study of Digital Switching Network Principle
- study of Frequency to Voltage Converter
- study of Voltage to Frequency Converter
- study of USART Module
- study of Stepper motor & Angular position module
- study of DC Motor and Generator
- study of AC Motor and Control
- study of Basic Transducers – Thermal
- study of Basic Transducers–Electromechanical
- study of Basic Transducer - Optical
- study of Transformers Module



ELECTRONICS LABORATORY BASE STATION

Model Number: EFT-LBS

Educational Objectives:

- The Laboratory Base Station serves as the platform for carrying out the student experiments.
- The Base Station provide all primary needs of the experiment requirements such as power supplies, Potentiometers, switches and data switches, clock generator, data display, speaker etc.
- The Base Station utilizes a sliding mechanism that accommodates various size of modules. Connections are made by 2mm connecting leads.
- The Base Station also contains Power Supplies, Potentiometers, switches, led indicators and speaker.



ELECTRONICS TRAINING SYSTEM

Model Number: EFT-ETS

Educational Objectives:

- Study of the fundamentals, concepts, theory and applications of electronics.
- As a starter course to provide new students with a good solid grounding in this area, before going on to specialized studies.
- The electronics training program is ideal for basic and intermediate studies in this field.
- For additional fundamental topics, including electrical applications, the student may desire to take the Basic Electrical Trainer Course prior to the electronics trainer.
- The trainer consists of a base stations into which are plugged in a number of modular boards that match the experiments.
- The Experiments cover basic electronic theory, electronic solid state circuits, semi-conductors, amp circuits, basic digital applications, and many more electronic circuits.
- The base station provides the power supplies, basic instrumentation and accessories that are required to support the training module boards.
- A group of module boards can be selected to teach specific subject areas such as: Fundamental Electronic, Amplifier, Circuit Applications, Power Supply, Electronic Control, Opto Electronics, and Fault Finding Technique.



OPERATIONAL AMPLIFIER TRAINER

Model Number: EFT-OPA-1

Educational Objectives:

- Study of Operational Amplifier system covering the fundamentals, concepts, theory and applications of op Amp circuits.
- Familiarization of operational amplifier application circuits.
- Further studies in op amp and provide more application circuits than previous study in Labtech Basic Electronics Trainer.
- Experimentations on inverting amplifier, summing amplifier, attenuator/divider, noninverting amplifier, differential amplifiers, impedance converter, comparator, astable multivibrator, monostable multivibrator, integrator, differentiator, delta and sawtooth generator, RC oscillator, Schmitt Trigger /squarer, pulse length discriminator, analog to frequency converter, analog to digital converter, digital to analog converter, exponential function, RMS value and square-root, analog calculation circuits.
- Consists of a base station into which is plugged in a modular board that match the experiments. The base station provides the power supplies, basic instrumentation and accessories that are required to support the training module boards.
- An experiment manual is provided to guide the student in doing the step by step experiment procedures according to the topics required.



ANALOG & DIGITAL COMMUNICATION TRAINER

Model Number: EFT-ACB-1

Educational Objectives:

- Study series of Analog Communications.
- Designed in a modular format using base station and PCB module approach in order to make the program both comprehensive and flexible for both the student and the teacher.
- Analog and Basic Communication covers the aspects of radio communication and circuits. Each set includes the training modules, base station plus interconnection cables and experiment manuals. Oscillator /2nd order LPF & HPF, AM Modulator & Demodulator, DSB-SC & SSB Modulator & Demodulator, FM Modulator & Demodulator, PLL frequency synthesizer, Audio Generator Module.
- The base station provides a working platform for the Analog Communications Modules. It contains power supplies, switches and other services required for operation of the modules.



BIOMEDICAL INSTRUMENTATION TRAINER

Model Number: EFT-BIO

Educational Objectives:

- A Study of Biomedical Instrumentation Circuits and Sensors : ECG, EEG, EMG, EOG, GSR, Pulse Rate, Temperature, and Oscillometric Blood Pressure measurements.
- Modular panels containing Basic Instrumentation and Monitoring Circuits. A Number of modules can be added optionally to expand the capabilities and functions of the trainer.
- Computer data acquisition for observing the biomedical signal waveforms
- Various biomedical transducers : ECG/EEG/EMG/EOG surface electrodes & leads, GSR electrodes, Infrared Photoplethysmograph finger electrode, differential pressure sensor, sphygomomanometer, Stethoscope, Electrode paste, 2mm leads & connectors
- DC Power supply : Patient isolated power and normal regulated power
- Course Manual Contains Laboratory Experiments, Covering Detailed Circuit Theory and Evaluation

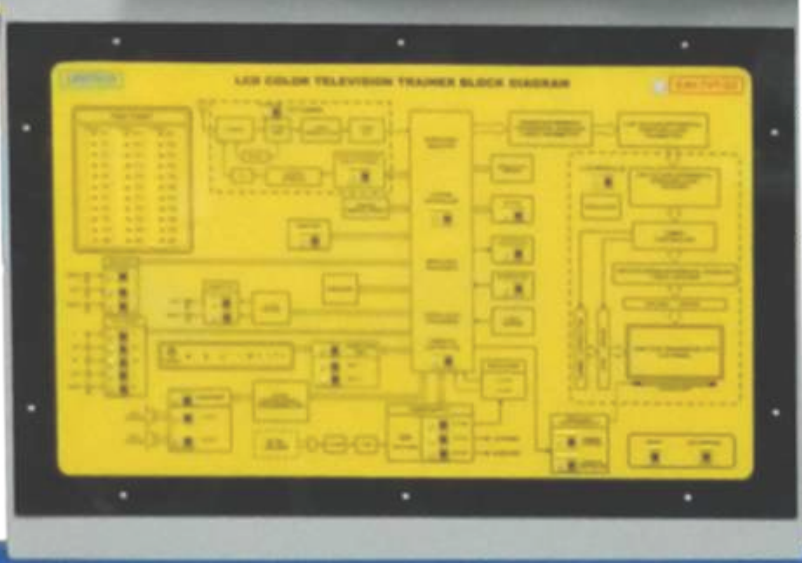
SENSOR AND TRANSDUCER TRAINER

Model Number: EFT-STT-1

Educational Objectives:

- Introduction to Transducers and Sensors.
- Using various the signal conditioning methods in transducer circuits.
- Using instrumentation amplifiers to amplify transducers output signal.
- Processing transducer signals to get meaningful reading of the measurements.
- Application of transducer and signal processing for electronic meters.
- Troubleshooting Transducer Circuits.





ELECTRIC/ELECTRONIC PANEL

An "ELECTRIC/ELECTRONIC PANEL" is mounted on the right side of the blue frame. It features the "LA3TECH Knowledge Engineering" logo. Below the logo, there is a white control panel with two rotary knobs and several indicator lights. A power cord is plugged into a socket on the panel. A silver antenna is also visible on the right side of the panel.

EAV - AUDIO , VISUAL
TECHNOLOGY SECTION

TELEVISION TRAINER

Model Number: EAV-TVT

Educational Objectives:

- Suitable for learning about television operation, theory, repair and servicing.
- Special attention is given to fault diagnosis so as to facilitate the teaching of troubleshooting techniques.
- The TV is mounted on an attractive chassis which allows the main printed circuit board to be exposed for ease of work.
- The circuit board features a plexiglass cover which has openings for access to all test points so as to allow insertion of probes while protecting the student and the circuit board.
- The trainer allows access to all the factory recommended key points for the taking of measurements, analysis and adjustments, the results of which are readily observable.
- The teaching program is designed to follow the service procedures as recommended by the manufacturer and uses the factory service manual in conjunction with student job sheets along with a test on television servicing and theory.
- A unique fault insertion system is built into the trainer for student instruction purposes. The system features a Schematic Block Diagram silk screened onto an integral fault board that utilizes LEDs to indicate the nature and location of the fault.



COLOR TELEVISION TRAINER

Model Number: EAV-TVT-F

Educational Objectives:

- These trainers are specifically created to teach television operation, theory, repair and servicing.
- Special attention is given to fault diagnosis so as to facilitate the teaching of troubleshooting techniques.
- The TV is mounted on an attractive chassis which allows the main printed circuit board to be exposed for ease of work.
- The circuit board features a plexiglass cover which has openings for access to all test points so as to allow insertion of probes while protecting the student and the circuit board.
- The CRT is mounted in its original case which has been modified so as to allow the rear of the tube to be easily accessible for student work.
- The trainer allows access to all the factory recommended key points for the taking of measurements, analysis and adjustments, the results of which are readily observable on the CRT. A unique fault insertion system is built into the trainer for student instruction purposes.
- The system features a Schematic Block Diagram silk screened onto an integral fault board that utilizes LEDs to indicate the nature and location of the fault.
- The fault is activated by touching an electronic switch.
- The Faults maybe visualized by use of the LED lights or the LEDs may be switched off, thereby not allowing the student to know where the fault is.



STEREO AMPLIFIER TRAINER

Model Number: EAV-STR

Educational Objectives:

- The Stereo Hi-Fi Trainer is a modular system designed to demonstrate the principles of stereo Hi-Fi operation, theory, repair and servicing.
- The system is especially suited for the training of prospective audio service technicians.
- A number of modules are offered, each of which is a complete trainer with electronic faults.
- All circuit boards feature plexiglass covers, which have openings for, access to all tests points so as to allow insertion of probes while protecting the student and the circuit board.
- The trainer allows access to all the factory recommended Key points for the taking of measurements, analysis and adjustments.
- A fault insertion system has been designed into the trainer so as to allow selectable faults to be simulated one each module for student instruction purposes.



STEREO HI-FI TRAINER

Model Number: EAV-STC

Educational Objectives:

- Demonstrating the principles of stereo Hi-Fi operation, theory, repair and servicing techniques.
- The system is especially suited for the training of prospective audio service technicians.
- The trainer is based upon popular brand Hi-Fi stereo systems from famous manufacturers.
- The combo type unit features an integrated Stereo System that features an amplifier, AM/FM Tuner, CD Player, Tape Cassette Player, clock Function and more.
- It has many features such as timers, auto on/off, programmable stations, etc.
- Each module is mounted on an attractive chassis, which allows the printed circuit boards and key parts to be exposed for ease of work.
- All circuit boards feature plexiglass covers, which have openings for, access to all tests points so as to allow insertion of probes while protecting the student and the circuit board.
- The trainer allows access to all the factory recommended Key points for the taking of measurements, analysis and adjustments.
- A fault insertion system has been designed into the trainer so as to allow selectable faults to be simulated one each module for student instruction purposes.



VCR TRAINER

Model Number: EAV-VCT-M2 Video Cassette Recorder Trainer

Educational Objectives:

- The VCR Trainers has been specifically designed for the teaching of service technicians in the operation, repair, servicing and troubleshooting of video cassette recorders.
- The program covers both the electronic and the electro-mechanical aspects of VCR servicing.
- The circuit boards feature a plexiglas cover so as to protect the circuit board from dust and damage.
- All controls built-into the circuit board are functional as well as the remote control.
- Test points have been brought out to a special PCB which groups all test points together and clearly labels them to aid in the diagnostic and testing process.
- This feature also reduces the risk of accidental damage to the VCR main circuit board by locating the test points off the main board.
- A unique fault insertion system is built into the trainer for student instruction purposes.
- The system features a Schematic Block Diagram silk-screened on to an integral fault board that utilizes LEDs to indicate the nature and location of the fault.
- The fault is activated by touching an electronic switch with a special teaching probe.
- Faults may be visualized by use of the LED lights or the LEDs may be switched off, thereby not allowing the student to know where the fault is.



VCD TRAINER

Model Number: EAV-VCD-2 Video Disc (VCD) Trainer (CD, VCD)

Educational Objectives:

- These trainers are specifically created to teach operation, theory, repair and servicing.
- Special attention is given to fault diagnosis so as to facilitate the teaching of trouble shooting techniques.
- The circuit board features a plexiglass cover, which has openings for access to all test points so as to allow insertion of probes while protecting the student and the circuit board.
- study of measurements, analysis and adjustments.
- The system features a Schematic Block Diagram silk-screened on to an integral fault board that utilizes LEDs to indicate the nature and location of the fault.
- The fault is activated by touching an electronic switch with a special teaching probe.
- Fault may be visualized by use of the LED lights or the LEDs may be switched off thereby not allowing the student to know where the fault is, this feature is ideal for testing purposes.



DVD TRAINER

Model Number: EAV-DVD-2

Educational Objectives:

- Study of basic operation, theory, repair and servicing.
- Special attention is given to fault diagnosis so as to facilitate the teaching of trouble shooting techniques.
- These trainers are ideal for use as stand alone units or can be combined with our TV trainers to make a complete Audio Visual training system.
- The DVD Trainer covers technology on CD, VCD and DVD systems.
- The each unit is mounted on an attractive chassis, which allows the main printed circuit board to be exposed for ease of work.
- The circuit board features a Plexiglas cover, which has openings for access to all test points so as to allow insertion of probes while protecting the student and the circuit board.
- The trainers allow access to all the factory recommended key points for the taking of measurements, analysis and adjustments.
- The teaching program is designed to follow the service procedures as recommended by the manufacturer and uses the factory service manual in conjunction with student job sheets along with a text on factory servicing and theory.
- A unique fault insertion system is built into the trainer for student instruction purposes.



VIDEO CAMERA TRAINER

Model Number: EAV-VCU

Educational Objectives:

- These trainers are specifically created to teach operation, theory, repair and servicing.
- Special attention is given to fault diagnosis so as to facilitate the teaching of troubleshooting techniques.
- These trainers are ideal for use as stand alone units or can be combined with TV, VCR or DVD trainers to make a complete Audio Visual training system.
- The each unit is mounted on an attractive chassis, which allows the main printed circuit board to be exposed for ease of work.
- The circuit board features a Plexiglas cover, which has openings for access to all test points so as to allow insertion of probes while protecting the student and the circuit board.
- The trainers allow access to all the factory recommended key points for the taking of measurements, analysis and adjustments.
- A unique fault insertion system is built into the trainer for student instruction purposes.
- The system features a Schematic Block Diagram silk-screened onto an integral fault board that utilizes LEDs to indicate the nature and location of the fault. The fault is activated by touching an electronic switch.
- The Faults may be visualized by use of the LED lights or the LEDs may be switched off thereby not allowing the student to know where the fault is, this feature is ideal for testing purposes.



MINI TV COLOR TRANSMITTER TRAINER

Model Number: EAV-MTV

Educational Objectives:

- The MINI TV-COLOR TRANSMITTER TRAINER is designed to demonstrate the principles associated with television broad casting through transmitters.
- Students can conduct measurements and experiments on audio and video signals, local oscillator and band pass filter outputs, gain noise, frequency and power of wide band amplifier.
- Construction and operation of the circuitry is covered on the course so as to familiarize students with basic design principles and the theory of TV transmission.
- Besides training in basic transmission technology, the trainer is useful in conjunction with other laboratories or equipment for conducting a variety of experiments and applications, such as: Amateur TV Transmission, Video installations where cable hook-ups are not possible such as in Robotics, Security and Industrial work, simultaneous viewing of general remote TV receivers, remote sensing applications, cable transmission, wireless camera/TV receiver or VCR link.



AUDIO TRAINER

Model Number: EAV-ATS

Educational Objectives:

- Study of basic audio systems skills and knowledge.
- Learning of basic theory, operation and testing procedures for trouble shooting.
- Consists of a series of modules which include the electrical and electronic components that are mounted onto specially designed printed circuit boards.
- The circuits are laid out in a logical sequence with the circuit block diagram silk screened on to the surface. Interconnections between key components or circuit blocks are provided through sockets and test leads.
- Components are mounted on to the circuit board and are accessible for testing and circuit analysis.
- The experiment topics include: DC circuit analysis, AC circuit analysis, measurement and testing in mono modules, measurement and testing in stereo modules, audio component design, audio testing procedures and general trouble shooting procedures.
- The system is modular and can be configured to cover the basics such as the mono audio system or progress into Stereo or even special applications such as audio mixing and sound effects generation.



TAPE RECORDER TRAINER

Model Number: EAV-TRR

Educational Objectives:

- These trainers are specifically created to teach tape recorder operation, theory, repair and servicing.
- Special attention is given to fault diagnosis so as to facilitate the teaching of trouble shooting techniques.
- The circuit board features a plexiglass cover which has opening for access to all test points so as to allow insertion of probes while protecting the student and the circuit board.
- Study of measurements, analysis and adjustments.
- The system features a Schematic Block Diagram silk screened into an integral fault board that utilizes LEDs to indicate the nature and location of the fault.
- The fault is activated by touching an electronic switch with a special teaching probe.
- Faults may be visualized by use of the LED lights or the LEDs may be switched off, thereby not allowing the student to know where the fault is.



TV ANTENNA TRAINER

Model Number: EAV-TVA

Educational Objectives:

- Learning about the many aspects of TV reception and signal distribution.
- Familiarization of various types of antennas in common use and demonstrate a number of methods of signal distribution in common practice today.
- Learning the characteristics and operation of antennas and antenna elements.
- Learning the characteristics and operation of signal distribution.
- Study of TV signal mixers, amplifiers, filters, converters, power supplies, cables, coaxial splitters, modulators.
- Study of combined signal distribution systems for TV, VCR, & Satellite signals.
- Study of Chain Distribution network and Node Distribution network.
- Measurement of cable attenuation.
- Study the individual broad-band system.
- Familiarization with the use of equalizer filter with channel amplifier; multiple channel with channel amplifier.
- Familiarization with the use of channel converter, use of broad-band amplifier.

SATELLITE TVRO SYSTEM TRAINER

Model Number: EAV-SAT

Educational Objectives:

- Learning the basic theory, operation, installation, maintenance, trouble shooting and repair of satellite TVRO system.
- Understanding on how these systems work and train to become a satellite TVRO technician or engineer.
- Both Analog systems as well as the newer Digital systems available.
- **The EAV-SAT-1 and EAV-SAT-3** trainer is built around a typical high power advanced satellite receiving station that can receive all the satellites that broadcast TVRO. It consists of a typical TVRO system that has been specially modified for training. Includes everything that is required for TVRO: the parabolic dish, dish position actuator, dish position control, feed horn, low noise amplifier, down converter, tuner coaxial cable, television unit.
- **The EAV-SAT-2 and EAV-SAT-4** also have an interface to a computer for analysis purposes. Includes a PC computer with special satellite analysis and dish aiming software. In addition a number of text books are provided which informs the students about all the technician details of the system.
- Job sheets enable the students to go through a systematic exploration of the TVRO system.
- A unique fault insertion system is built into the trainer for student instruction purposes. The system features a Schematic Block Diagram silk screened onto an integral fault board that utilizes LEDs to indicate the nature and location of the fault. The fault is activated by touching an electronic switch with a special teaching probe.
- Single and multiple faults may be introduced at any time. Faults maybe visualized by use of the LED lights or the LEDs may be switched off, thereby not allowing the student to know where the fault is. This feature is ideal for testing purposes.



VIDEO PHONE AND CCTV SECURITY SYSTEM

Model Number: EAV-CCT

Educational Objectives:

- This system facilitates the study of CCTV Security Systems and configurations.
- Designed to train students in domestic and commercial applications.
- Learning about the system components, their use, placement of cameras and sensors, wiring and operation of the systems along with basic trouble shooting.
- All components are fixed to panel mount frame system.
- A three level panel frame is included so those components can be easily placed on the frame in various configurations and then connected together to form working systems.
- This makes wiring and experimentation very fast and easy.
- Learning the use of CCTV on detecting and monitorin unauthorized personnel and recording their movements.
- Familiarization of operation and placement of several different types of cameras and sensors.
- **EAV-CCT: Basic System.** Has features similar to residential or small commercial applications which is normally used as an augment to a security guard station. The system consists of 4 cameras (of 3 different types), infra-red motion detector, remote On/Off switch, TV Monitor, Multiple camera switcher plus cabling and accessories.
- **EAV-CCT-X: System with VCR.** This is a more complex system with recording facilities. The system includes 4 cameras (of 3 different types), infrared motion detector, TV monitor, multiple camera switcher, security type VCR with long playing tape facility, plus cabling and accessories.
- All components are mounted on to panels with connection terminals. A three level frame is included.



PABX & INTERCOM TRAINER

Model Number: EAV-ITT

Educational Objectives:

- Study about theory, operation, and installation of telephone/intercom systems.
- Enhancing knowledge and practical aspects of the system which will help the student to understand the technology and it's applications.
- The trainers feature real telephone and intercom products that have been specially modified for training.
- The systems are fully operational and modular in nature a set of experiments is designed to cover the theory, use, set up and installation practices in a comprehensive experiment manual to guide the students understanding the system.
- All components are mounted on to the panel type training format which features transparent plexiglass modular panels which are mounted on to a rack system.
- A unique fault insertion system is built into the trainer for student instruction purposes



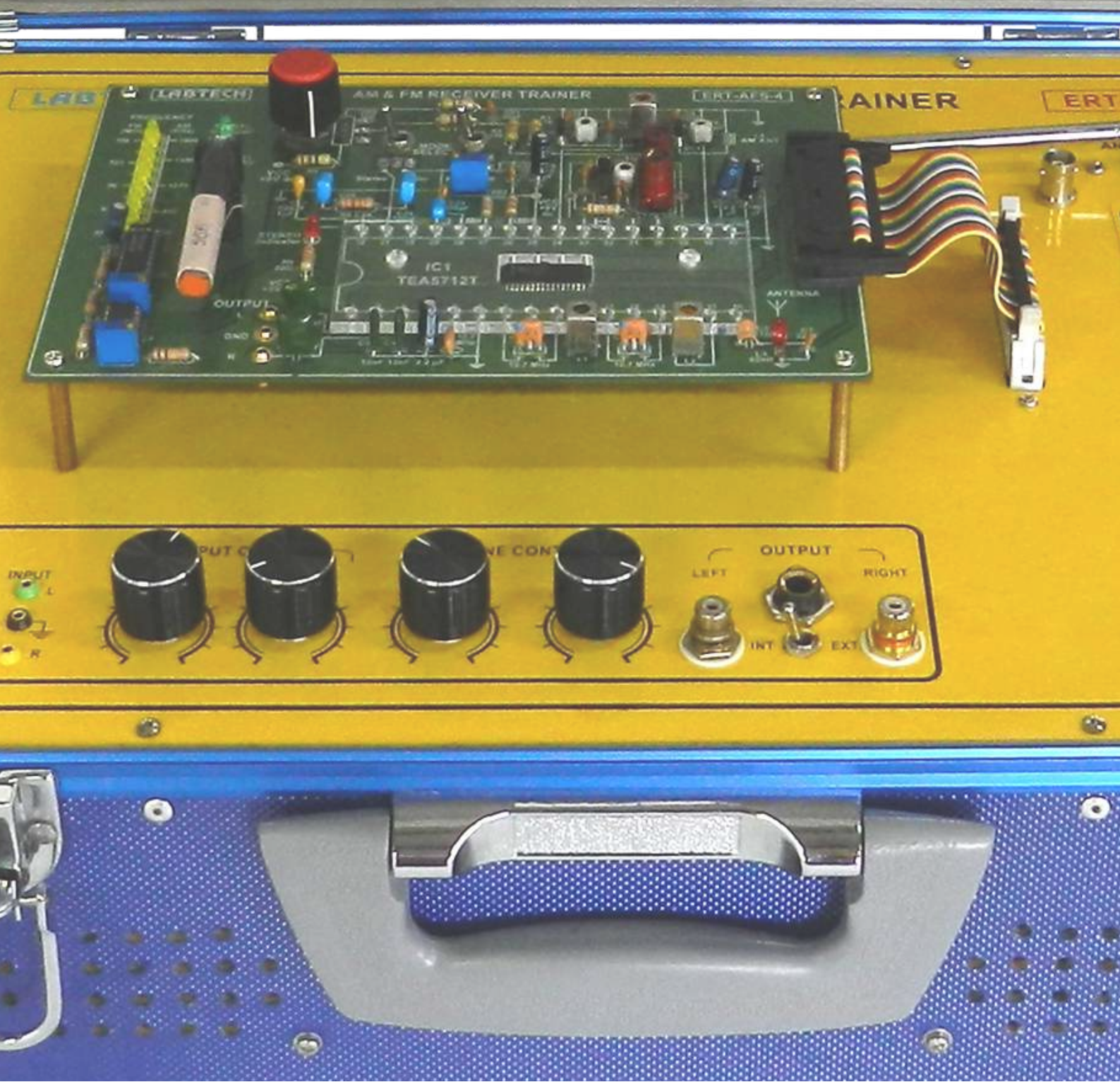
INTERNET BASED VIDEO SURVEILLANCE TRAINER

Model Number: EAV-IBV

Educational Objectives:

- The system consists of a control panel onto which a schematic of the electronics circuit is silkscreened.
- The fault system is located next to the circuit diagram and each fault has an LED indicator (to show when the fault is activated).
- Beside the LED is a fault activation pin which controls the fault, faults are electronically activated by Micro switch.
- When the fault is activated the LED light will automatically turn on.
- The system can be set back to normal operation easily and quickly by Micro switch.

ERT - RADIO COMMUNICATIONS TRAINING SYSTEM



CB TRANSCEIVER TRAINER

Model Number: ERT-CBT-1

Educational Objectives:

- The Citizens Band (CB) Transceiver Trainer is designed to familiarise students with the operation, maintenance, adjustment and repair of CB units.
- The trainer consists of CB unit which has been mounted in a special chassis with all key internal parts exposed.
- All controls are functional just as on an actual CB and test points are available for the student to make measurements and tests directly without opening the case.
- The fault is activated by touching an electronic switch with a special teaching probe.
- Faults maybe visualized by use of the optional LED fault display board which features a schematic of the circuit block diagram silk screened onto the display panel that incorporates LEDs to show the location of the faults.
- LEDs maybe switched off, thereby not allowing the student to know where the fault is.



AM & FM SUPER HETERODYNE RADIO TRAINER

Model Number: ERT-AFS

Educational Objectives:

- This compact trainer is designed to teach overall theory and operation of AM & FM Radios as well as covering advanced points concerning testing and troubleshooting in radio engineering.
- The trainer consists of complete operational circuits for an AM Superheterodyne receiver as well as an FM Superheterodyne receiver which have been mounted onto easily accessible printed circuit boards.
- The circuits are logically laid out and feature the circuit block schematic diagram printed onto the surface of the board identifying functions, components and numbered test points.
- Components including adjustable trim pots, tuning controls, and removable ICs are mounted on top of the boards to allow students access to them.
- The fault is activated by touching an electronic switch with a fault teaching probe.

RADIO COMMUNICATIONS TRAINING TRAINER

Model Number: ERT-RCT

Educational Objectives:

- Modular based program designed for the study of radio communication.
- Study basic RF principles to advanced concepts in an organized and methodical way.
- Each module covers a particular receiving or transmission technology and consists of a special board on to which the circuit components are mounted.
- Familiarization of components which are laid out in a clear and logical manner and the circuit schematic diagram is silk-screened on to the surface.
- Component identification and explanation of the circuit function.
- Test points are featured in appropriate places and are numbered for reference in the exercises.
- Fault circuits are built into each module and can be activated through the electronic fault insertion system included on the station.
- The station features common controls, power supply and an electronic fault insertion system that is required for operation of the module.



INTEGRATED AM & FM TRAINER

Model Number: ERT-AFS-4

Educational Objectives:

- The compact trainer is designed to teach overall theory and operation of AM & FM Radios as well as covering advanced points concerning testing and troubleshooting in radio engineering.
- The trainer consists of complete operational circuits for an AM Superheterodyne receiver as well as an FM Superheterodyne receiver which have been mounted onto easily accessible printed circuit boards.
- The circuits are logically laid out and feature the circuit block schematic diagram printed onto the surface of the board identifying functions, components and numbered test points.
- Components including adjustable trim pots, tuning controls, and removable ICs are mounted on top of the boards to allow students access to them.
- A special electronic fault insertion system is built into the trainer for student instruction purposes.
- The fault is activated by touching an electronic switch with a fault teaching probe.
- Single or multiple faults may be introduced at any time.
- The Trainer includes comprehensive manuals and experiment sheets.



WALKIE TALKIE TRAINER

Model Number: ERT-WTT

Educational Objectives:

- Explain the working principle of walkie talkie corresponding with transmitter and receiver system
- Identify and understand the control function and part name of the walkie talkie also capable to operate the walkie talkie and use its controls properly
- Capable to trace and analyze the part malfunction symptoms based on measurement result.

ANTENNA SYSTEM DEMONSTRATOR

Model Number: ERT-ASD

Educational Objectives:

- Study of basic theory of radiation, radiating and non radiating systems.
- Learning the implementation of Square Law of Propagation
- Plotting radiation pattern of Omni-directional and Directional antennas
- Study of antenna Polarization
- Study of a resonant and non-resonant antenna
- Study of antenna parameters
- Directive gain measurement of antennas
- Study the effect of parasitic elements on antenna parameters
- Observation of antenna physical design and modeling



CELLULAR MOBILE PHONE TRAINER

Model Number: ERT-CTT

Educational Objectives:

- Learning the operation, theory, programming, servicing, problem diagnosis and repair of cellular mobile systems.
- The trainer is based upon a popular brand GSM (Global System for Mobile) Phone, which has been specially modified to facilitate training, allows easy access to the internal parts and components and includes a special electronic fault insertion system.
- The trainer allows access to all the factory recommended key points for the taking of measurements for analysis and adjustment.
- The training program covers the study of digital cellular telephony including the basic functions of GSM, telephone keyboard and display, microphone and loudspeaker, internal construction and function of components, Digital signal Processor (DSP).
- Each trainer comes with complete courseware as follows:
 - a) Service manual with detailed circuit board schematic diagram
 - b) Student job sheets with fault troubleshooting guide
 - c) Accompanying text book covering operation, theory and repair
- Fault insertion system is built into the trainer for student instruction purposes. The system features a Schematic Block Diagram silk-screened onto an integral fault board that utilized LEDs to indicate the nature and location of the fault.



MICROWAVE TRAINING TRAINER

Model Number: ERT-MWT

Educational Objectives:

- Study of advanced part of Microwave Communications.
- Both Klystron oscillator and Gunn oscillator transmitters are available in the systems.
- The training systems can be used as a stand-alone trainer or connected to other communications training systems in order to form a complete mini-lab communications systems for sending and transferring voice and data signals in a variety of ways.
- Includes a full complement of microwave components for studies and comprehensive experiments into aspects of signal (transmit and receive) and measure the frequency and power of the signals.
- Demonstrations of reflection, polarization, standing wave ratio, attenuation, impedance measurements, and other important microwave aspects.
- Learning the theory of microwave transmission and reception systems and it covers practical aspects related to the hardware and technology employed.





EOA - OFFICE AUTOMATION

FACSIMILE MACHINE TRAINER

Model Number: EOA-FAX

Educational Objectives:

- Each trainer is designed to instruct service technicians in the operation, theory, servicing, problem diagnosis and repair.
- Circuit boards feature plexiglass covers, which have openings for, access to all tests points for instrument readings.
- A unique fault insertion system is built into the trainer for student instruction purposes and includes 20 faults.
- The system features a Schematic Block Diagram silk-screened on to an integral fault board that utilized LEDs to indicate the nature and location of the fault. Touching an electronic switch with a special teaching probe activates the fault. Activated faults are visible as the corresponding LED illuminates on the fault board. The LEDs can also be switched off thereby not allowing the student to know where the fault is.



PHOTOCOPY MACHINE TRAINER

Model Number: EOA-PCT-1

Educational Objectives:

- Each trainer is designed to instruct service technicians in the operation, theory, servicing, problem diagnosis and repair of the key machines.
- Circuit boards feature plexiglass covers, which have openings for, access to all tests points for instrument readings.
- The system features a Schematic Block Diagram silk-screened onto an integral fault board that utilized LEDs to indicate the nature and location of the fault.
- Touching an electronic switch with a special teaching probe activates the fault.
- Activated faults are visible as the corresponding LED illuminates on the fault board.
- The LEDs can also be switched off thereby not allowing the student to know where the fault is.

ELI - ELECTRONIC
LABORATORY
INSTRUMENTATION



OSCILLOSCOPE TRAINER

Model Number: ELI-OSC-1

Educational Objectives:

- The Electro train laboratory instrumentation series of trainers are designed to instruct in the proper use, operation, function, theory, and construction of each specific instrument.
- The courseware covers topics including the theory of how oscilloscopes work, the specific operation of the circuitry inside the training unit, the purpose and use of oscilloscopes, the procedures for making proper measurements, use of the instrument and trouble shooting oscilloscopes.
- Study of to instruct the student in the proper use of oscilloscopes, which is a basic skill required by all electronics technicians.
- Study of to provide the knowledge for trouble shooting and repair skills as required for an instrumentation technician.
- The oscilloscope trainer is based upon a standard commercial 20 MHz, dual trace oscilloscope that has been modified to provide easy access to the internal circuitry.
- An illuminated circuit block diagram represents the location of the faults. The location of the faults may be displayed or switched off for testing purposes.
- In addition to being used as a trainer, this unit is also fully functional as a laboratory test instrument.
- Trainer comes complete with operation manual and student exercises.



PC BASED VIRTUAL INSTRUMENTS

Model Number: ELI-VTL-A

Educational Objectives:

- The PC Base Virtual Instrument system is ideal for the training of technicians in the overall operation and performance of electrical and electronics systems.
- The unit is designed to give realistic real time performance that functions in the same way as stand-alone instrumentation.
- Meters and indicators in the system can be used together with the training systems to indicate signal outputs and levels of various test points for the experiments. It can also be used to test real operational circuits and electronic items.
- The Virtual Instrument package consists of both a hardware unit that contains the signal processing and software. Together they will allow the student to take measurements of the experiment boards and be displayed on the PC. PC Based Virtual Instrument system is used with a PC or a laptop computer.
- The hardware unit face panel includes connection terminals for probes, instrument operation controls for the signal generator, input terminals for logic analyzer.
- The Virtual Instrument system includes a Digital multimeter (multiple units), Signal generator, Dual channel Oscilloscope, Logic Analyzer and Spectrum analyzer.
- The system includes all test probes and connections to work with the Trainer.
- Unit includes an interface to the Classroom Management System with status indicators
- It also features a power connection which can be used to power and control the training system under testing.
- The feature will allow the CMS system to turn off the power to the training systems from an instruction by the teacher which can be triggered via the CMS system over the internet.
- The Status of the power is shown by the Power Indicator light



Blending Virtual Learning with the Practical World

Labtech has two main Digital learning Systems which are available for use in the classroom and workshop. Both are designed to enhance the students learning experience and keep track of their progress and assessments. They can be used to extend the learning space into virtual learning for either the Labtech training systems or even generic subject content.

1. Computer Aided Instructional Modules (CAI) Labtech Training Systems - CAI modules are available for all major Automotive training systems. They present all the elements of the student manuals into a media rich e-learning format which incorporates many color photos, illustrations, videos and simulations. The student is led through the courseware on the training system, is given assessments of the theory then proceeds onto the experiments which detail the steps often including videos showing key procedures being performed. It also facilitates the student to enter in his results for review by the teacher. The CAI offers a comprehensive step-by-step program to guide the student through the use of the training system.

2. Flexible Micro Learning Modules to match all curriculums - Labtech's digital micro learning modules are designed as generic topical learning elements which are modular so as to integrate with most school or national curriculums. Each module deals with a distinct single learning topic which is common to most curriculums and provides enhanced learning materials for the student to explore and learn about these topics. They are provided in such a way that they can be used as supplemental learning materials to enhance the learning process or they can be incorporated into the main classroom activities. The content is organized in a systematic way and is easily accessed by the teacher and the students. Each module can be utilized according to the presentation schedule of the teacher so the materials are available when and where they need them.

Contents of the Modules: The modules contain realistic graphic animations and simulations of the topic selected for study. They also have information about the associated theory and science of about the topic, construction of the component, identification exercise for constituent components, illustrations of the operational processes, examples of real industry parts and videos of real systems. An assessment quiz is included which challenges the student about what he has learned. The assessment can guide the student to reflect further on parts of the topic which he may not have mastered. Students can work at their own pace and complete each module in about 20 to 45 minutes.

Subjects Listing:

Packages are available for Basic Automotive, Advanced Automotive, Basic Electronics, Basic Electrical, Electrical Motors, Basic Refrigeration and Air Conditioning, Computer Technology, Network Technology, Basic Mechanical Mechanisms, Renewable Energy (Green Tech) and Biomedical.

Classroom Deployment:

Networked PC Multimedia Lab: It is deployed on a classroom or school server and can be accessed by any PC. The modules are able to be accessed with the Labtech LMS system. The Labtech LMS is designed especially for Vocational and Technical Schools. The LMS content is displayed in a browser and the students and the teachers can log in. Licenses are provided for the whole school for access for the learning materials. The system also works best when the Classroom 21 CMS system is used which helps the teacher to monitor the students and to interact with them during learning.

Tablet Cart Deployment: The system is able to be deployed in a classroom cart configuration. This is a mobile tablet cart equipped with either 20 or 40 Android or Windows tablets, a server, a teacher laptop, the LMS, the CMS and with the software preloaded onto the system. This can solution can turn any classroom into a e-learning or blended learning environment.

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Labtech Training Systems are used in over 75 countries world wide and indicated in blue on this map.
We also have 6 regional operational locations marked with a flag .

Labtech Product Areas :

- Air Conditioning and Refrigeration Technology
- Automotive and Transportation Technology
- Biomedical Technology
- Computer & Networks Technology
- Digital TVET Content for Virtual Learning
- Electrical Technology
- Electronics Technology
- Learning Management Systems / Classroom21 CMS
- Renewable Energy and Green Tech
- TVET Learning Management System

Labtech has obtained major Quality Certifications from TÜV Rheinland, Germany:
ISO 9001:2015 Quality Management System



Management System
ISO 9001:2015
www.tuv.com
ID 9105033389



9001 Certification Categories: Research, Assessment, Design and Development of Educational Training Systems, Programs and Products. Manufacturing of Educational Training Systems and Products to International Standards which includes the processes of: Production, Manufacturing Resource Planning (MRP), Quality Control and Assurance (QC/QA), International Sales & Marketing, Project Implementation and Consulting Services, Training Programs and Customer Services.

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