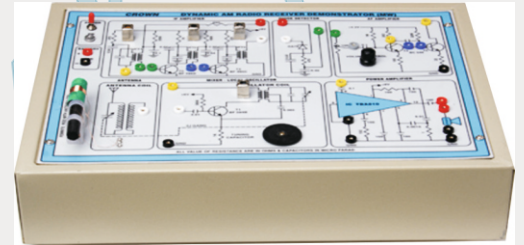


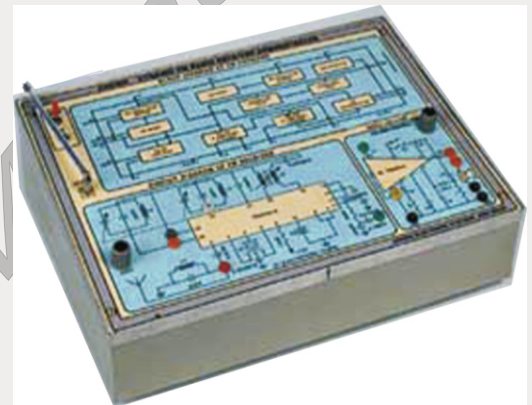
RADIO RECEIVER DEMONSTRATOR

AM RADIO RECEIVER DEMONSTRATOR



The "CROWN" #AM RADIO RECEIVER DEMONSTRATOR is versatile super Heterodyne Receiver Design to understand all the functions of a single Band Transistor receiver. The Trainer is made on Single PCB (Size. 345mm x 250mm) and all components are mounted in side and circuit is made on Top. It has got an antenna coil, local oscillator, RF Amplifier, IF Amplifier, Diode Detector, audio amplifier, Power Amplifier with volume control & Speaker. The trainer is supplied with built-in power supply. To observe the characteristics i.e. Sensitivity, Selectivity, Fidelity, Stability, Noise Figure and signal to Noise Ratio & Hum Measurement.

FM RADIO RECEIVER DEMONSTRATOR



!CROWN" module has been designed to study of FM Receiver using IC 5591. Detecting an FM signal is more complex than detecting an AM signal. Since the information is contained in the carrier's frequency changes (note the amplitude), it is the frequency deviation of the carrier that must be detected to recover the base band signal. The detector is a discriminator, before the detector there is a function called a limiter. The limiter will provide immunity from a noise signal added to the FM signal. This is especially true of environmental noise. And third, after the discriminator there is an added function called the squelch circuit. This prevents the listener from hearing a constant noise output when no signals are present. Both the limiter and the squelch functions improve the performance of the FM receiver for the listener.

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X-Y TYPE CRO DEMONSTRATOR

CROWN made XY Oscilloscope Demonstrator is design to understand the Functions of a Basic Oscilloscope. The entire circuit is printed on the front panel . The complete circuit have been divided into following sections :

1. Vertical Section
2. Horizontal Section
3. Time Base
4. EHT & LT Power Supply
5. CRT Section

VERTICAL CHANNEL :

Sensitivity	:	20 mV P / P cm. at 1KHz
Frequency Response	:	10 Hz to 1MHz (-3db)
Input Impedance	:	1M Ω shunted by 40 PF (approx)
Attenuator	:	3 steps of 1 : 1 , 1 : 10 & 1 : 100 with in between continuously Variable control

HORIZONTAL CHANNEL :

Sensitivity	:	100 mV P / P per cm at 1KHz
Frequency Response	:	10 Hz to 100KHz (-3db)
Input Impedance	:	1M Ω shunted by 40 PF (approx)
Attenuator	:	3 steps of 1 : 1 , 1 : 10 & 1 : 100 with in between continuously Variable control.

X - Y OPERATION :

Band Width	:	10 Hz to 1MHz
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SWEEP FREQUENCY :

Frequency	:	10 Hz to 100KHz in 4 range with Vernier
Synchronization	:	1. Internal 2. External 3. Line i.e. 50 Hz

Display	:	70 mm Diameter CRT , Display area 10 x 10 div.
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Power Requirement	:	230VAC \pm 10%
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COLOUR TV TRAINER KIT



- The complete circuit of Remote Colour T.V. is printed on single PCB.
- All parts are soldered on single pin tag for easy replacement and fault creation
- Micro switch for faults creation.
- Section wise different coloured screen printed circuit on the PCB for easy understanding of functions of different sections.
- Typical ICs are provided on sockets to provide facility to check similar other ICs and also to create the faults by inserting faulty ICs in the sockets.
- Explanation, Observation, Alignment and adjustment of internal and External controls is possible at a glance due to single PCB.
- Easy identification of different parts of Remote COLOUR TV at a glance.
- Easy measurement of Voltages and observation of waveforms at any point. Also typical voltages and waveforms are provided.
- The whole circuit of Remote Colour TV is explained sectionwise in detail in the manual.

SPECIFICATIONS

- **System** : CCIR-B-PAL-G, 625 Lines.
- **Power Supply** : 230V \pm 15% AC, 50Hz.
- **Regulation range** : 195V AC to 265V AC.
- **Power Consumption** : 75 watts (approx.).
- **Fuse** : 2A

- **I.F. Frequency** : 38.9MHz for Video
: 33.4Mhz for Audio
- **Sound output** : 20 watts maximum.
- **Picture Tube** : 36 cm
- **ETH** : 24 KV
- **Channels** : 230 channels VHF 1- 2 To 4, VHF III-5 to12, BandIV & V – upto 100 S – Band and Hyper – Band.
- **RF I/P Impedance** : 75 ohms.
- **Circuit Blocks** : System Control Circuit, Vidio IF, Sound Selection, Tuner Selection, Horizontal & Vertical Oscillator & Output, Vidio & Chroma section, Power Supply Section, AV Section and Remote Section.
- **ON Screen Display To Set** : Volume, Brightness, Contrast, Colour, Channel and Band Selection, Tuning.
- **Panel Control** : ON-OFF switch, Stand by menu, Volume +/-, Program +/-.
- **Remote Control Function** : Volume, Brightness, Contrast, Colour, Channel Selction, Audio Mute, Scan, Zoom etc.
- **Fault Creation** : Fault Creation Facility with Test Points
- **No. of Faults** : 50.
- **No. of Test Points** : More than 50 with different colours.
- **Speaker Size** : (50×125)mm.
- **Colout Adjustment Control Provide Outputside with More than 20 Experiments.**
- **Accessories** : 2 mm moulded connecting cord.
- **Experimental manual with Circuit Diagram.**

SPECIFICATIONS CAN BE CHANGED AND ADDED WITHOUT NOTICE IN OUR CONSTANT EFFORTS FOR IMPROVEMENT.

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69/2A, 2nd Floor, Najafgarh Road Indl. Area, Near Moti Nagar Crossing, New Delhi-15. Phone : 011-6450 8649/50, 2599 5324, Tele Fax : 011-4501 3465 E-mail : crownelectronicssystem@yahoo.com, info@crownelectronicssystem.com
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DUAL TRACE CRO TRAINER

FEATURES :

- * To study of principles of operation & troubleshooting skills in a Dual Trace CRO.
- * Coloured sliding panels with sockets for test points and 18 faults in different sections.
- * Operational Block diagram is spread over colourful informatics Functional units as panels.

TECHNICAL SPECIFICATIONS :

Modules (separate)	:	Vertical deflection (CH1 & CH2), Time Base, Power supply & O/p Amplifier, Switching , EHT section
Bandwidth	:	20MHz
Mode	:	Dual trace, single and X - Y Mode.
Time Base	:	Time coefficients 18 calibrated steps in 1 - 2 - 5 sequence 0.5 us/cm to 0.2s/cm with variable to 0.2us/cm CAL status should be indicated by LED , Accuracy + 3% Trigger System
Modes	:	Auto or Normal ,
Source	:	CH 1, CH II, Alt, Line, Ext.
Coupling	:	AC, DC, HF, VHF, LF, LINE Slope +/-
Sensitivity	:	Internal Auto /Normal
TV Sync separate for line & frame	:	TV : H & TV : V

Vertical Deflection 12 calibrated steps in 1-2-5 sequence 5mV/cm to 20 V/cm with variable control. CAL Status should be indicated by LED

Accuracy	:	+ 3%. Input Impedance: 1M Ohm.
Max Input Voltage	:	400V (DC + Peak AC)
Input Coupling	:	AC, DC, GND.
Rise Time	:	17.5n sec.
XY op. Bandwidth	:	DC - 3MHz
XY Phase Shift	:	3degree, upto 100 KHz. (-3dB).
CRT	:	5" rectangular flat face, quick heating, CRT shielding phosphor P31

18 Faults creation facility is provided in different Module's.
It has facility of Component tester and Continuity tester.

Standard accessories : Power cord, CRO probes, Fuse Operating Manual.

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EPABX Trainer



EPABX is a single board EPABX TRAINING KIT configured around the most popular microcontroller 89C51. EPABX can be used to trained the Engineers about the architecture of EPABX.

The kit has the capability of interfacing with an IBM compatible PC. The kit provides various powerful software commands like INSERT, DELETE, BLOCK MOVE, FILL, SET/CLR BREAKPOINTS etc.

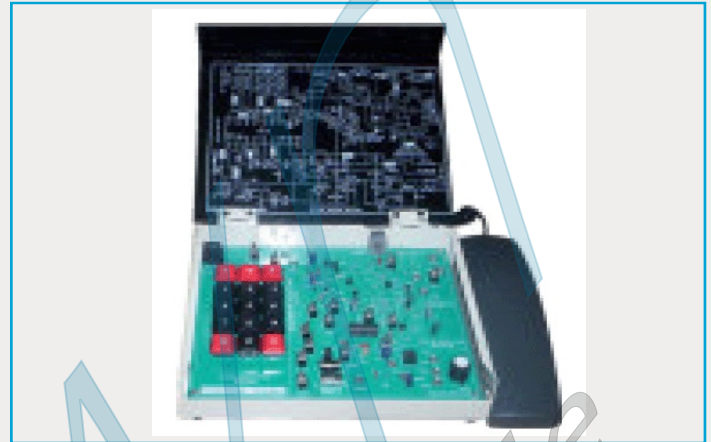
VPL-EPABX gives the complete idea about the working of EPABX. Students can write own program for alter the working of EPABX by their own idea. **This EPABX trainer also work as normal EPABX system** to enable the students to understand the working of the systems which are using in the real world.

This EPABX trainer have the **provision to use 1, 2 or 3 trunk lines & 4, 6 or 8 extension lines** respectively. Locking & other facilities are provided in this trainer same as normal EPABX. This trainer can perform the following functions such as **use the password to protect the call Extension** to Extension call, Hold, Call transfer, Call pickup, Call parking, Call forwarding, Redial, Call control, Conference, Do not disturb etc.

SPECIFICATIONS

- Based on **89c51CPU**.
- **Provision for upto 1 trunk Line & 3 extension lines.**
- IBM PC Compatible Keyboard for using commands.
- 20 x 2 LCD Display.
- Complete circuitry of EPABX is on board.
- Working in 2 Modes:
 - Trainer Mode | EPABX Mode
- Explanation, Observation, Alignment and adjustment of internal & external controls is possible.
- **Programme for different section can be written in RAM.**
- **Programs written by user are executable.**
- Standard EPABX specification.
- **70dbm Cross Talk Attenuator.**
- Telephone Instruments (Optional).

Telephone Trainer



SPECIFICATIONS

- The Telephone Trainer is provided on a single PCB with circuit MIMIC inscribed on it
- Mute, Redial and On/Off Hook switches, Dialer and Ringer section
- Pulse dialing as well as Tone dialing facility and Music On Hold
- Power is taken from external telephone line, no power supply required to work with this kit
- Various test points and LED's are provided onboard to study signals at different stages
- Switch Faults are provided to study different effects on circuit
- Line In Section: One DOT line connection port
- Handset: One Handset connection port
- Keyboard: 4 x 3 Matrix keyboard and Dialer: Tone & Pulse
- Facilities: Redial up to 32 digits, Mute and On/Off Hook switches
- Indicators: Line in, Hook, Tone & Ringer
- Control: Ringer volume control and Speech Path: Fully Non-Blocking
- Dial Pulse Ratio: 10pps +/-10% and Tone Frequency: 430Hz
- The system should be supplied with hard copy of user manual, circuit description manual and interactive multimedia software manual on CD.

Experiments perform on the EPABX trainer are :

- Redial
- Extension to Extension Call
- Paging
- To hold a line
- Call consult
- Call parking
- Call forwarding busy
- Talk trunk to extension
- Call pickup
- Call transfer
- Auto call back
- Locking/Unlocking etc.

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UPS TRAINER

“CROWN” made UPS TRAINER to study the working of a ups circuit different faults in a ups & troubleshooting of different faults.

SPECIFICATION :

- 1) Based on highly reliable Microchip PIC micro @ microcontroller.
- 2) MOSFET based power stage, with PWM AC output.
- 3) Mains to Backup mode changeover time less than 9mSec.
- 4) Backup mode protected against Overload, short circuit, reverse phase and unbalanced MOSFET drive.
- 5) Line Synchronized change over from Mains to Backup and Back.
- 6) Over current of MOSFET's protected within micro seconds.
- 7) Three step AVR with input range 140V to 280V AC. and output range 200-245V AC.
- 8) MOSFET based PWM battery charger.
- 9) Automatic low battery warning and cut off.
- 10) Maximum output load = 600VA

Test Points & Observations :

- **Test Point 1** - AC mains voltage at the input of UPS.
- **Test Point 2** - AVR first relay control signal.
- **Test Point 3** - AVR second relay control signal.
- **Test Point 4** - AVR third relay control signal.
- **Test Point 5** - Transformer bindings for AVR section.
- **Test Point 6** - Transformer bindings for PWM section.
- **Test Point 7** - Transformer bindings for charging section.
- **Test Point 8** - AC voltage at the output of UPS.
- **Test Point 9** - Output voltage of charger (MAINS MODE) & Battery voltage (BACK UP MODE)
- **Test Point 10** - PWM 1 Signal from PIC controller.
- **Test Point 11** - PWM 2 Signal from PIC controller.
- **Test Point 12** - Control signal of buzzer from PIC controller.
- **Test Point 13** - Inverter indicator signal.
- **Test Point 14** - Output indicator signal.
- **Test Point 15** - Mains indicator signal.
- **Test Point 16** - Battery reference voltage input to PIC controller
- **Test Point 17** - Mains reference voltage input to PIC controller

Fault & Troubleshooting :

- 1) Backup mode failure
- 2) Mains failure
- 3) Output failure
- 4) Battery failure
- 5) Buzzer failure
- 6) Mains Indicator failure
- 7) Output Indicator failure
- 8) INV. Indicator failure
- 9) Battery reference voltage failure
- 10) Complete UPS Circuit failure (Backup & Mains Both Mode Failure)

Optional Acc. :

- 1) Multimeter
- 2) Auto Transformer



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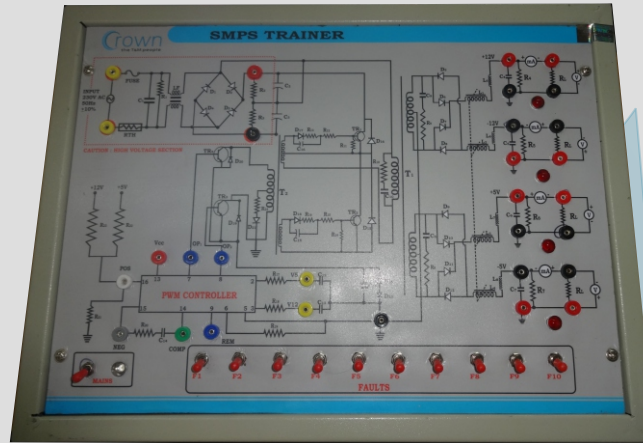
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SMPS TRAINER



“CROWN” made SMPS TRAINER to study the working of a smps circuit & trouble shooting of different faults in a smps power supply.

SPECIFICATION :

- 1) SMPS Power Supply circuit with four output +5V, -5V,+12V& -12V
- 2) Test points at different stages.
 - a) Mains Stage (b) Rectifier and Filter Stage (c) PWM Controller Stage (d) Output Stage
- 3) 10 Nos. fault switches for different stages of SMPS.
 - a) Fault in mains AC supply (b) Fault in Rectifier Stage (c) Fault in operating supply of PWM Controller (d) Fault in Remote Signal (e) Fault in PWM1 Section (f) Fault in PWM2 Section (g) Fault in +12V Output Supply Section (h) Fault in -12V Output Supply Section (i) Fault in +5V Output Supply Section (j) Fault in -5V Output Supply Section
- 4) Internal load for all supply voltages.

Optional Acc. :

- 1) Multimeter
- 2) Auto Transformer

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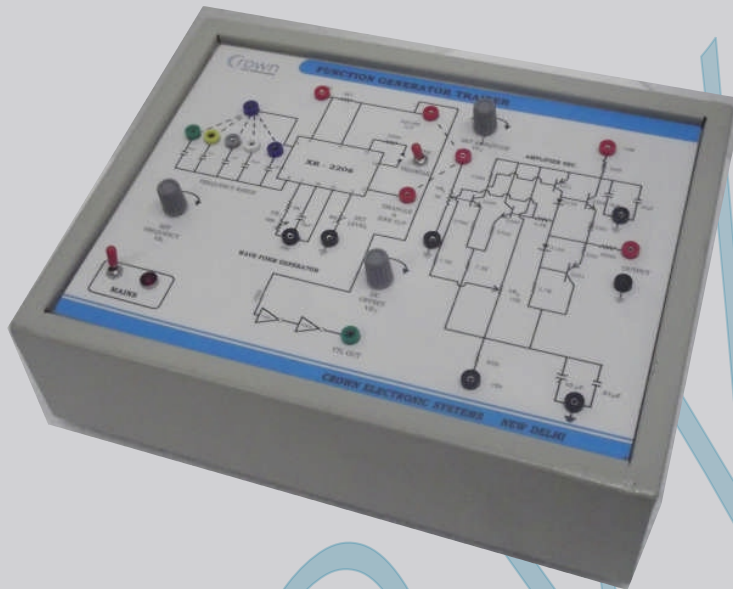
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FUNCTION GENERATOR TRAINER KIT



- * Frequency range 1 Hz to 100 KHz in decade steps.
- * Wave form : Sine, Square, Triangle, & Pulse TTL output
- * DC offset Adjustment,
- * Amplitude – up to 20 V p-p (Variable)
- * Output Impedance 600 ohm \pm 10%
- * Test point provided on trainer board

CROWN ELECTRONIC SYSTEMS

LCD TV TRAINER



“CROWN” made LCD TV Trainer to study the following :

- 1) Study of different parts of LCD TV.
- 2) Study of different functions of LCD TV.
- 3) Study of different faults in LCD TV.

SPECIFICATIONS:

- INPUT VOLTAGE : 220V AC \pm 10%
- 1) Operating Supply : 12V/4A DC
 - 2) AVI, RF, USB, HDMI, VGA Input terminals & audio output terminals.
 - 3) System PAL/SECAM
 - 4) Status displaying method : on screen display
 - 5) Function adjustment indicator : Menu display.
 - 6) RF arial input : 75 ohm unbalanced
 - 7) AVI video input : 75 ohm, 1.0Vp-p, RCA.
 - 8) AVI audio input : 10K ohm, 0.5Vrms.
 - 9) 7 control panel switches (PWR, CH \pm , V \pm , MENU & INPUT) & Remote Control.
 - 10) 17 fault switches at different stages.

SPECIFICATIONS CAN BE CHANGED AND ADDED WITHOUT NOTICE IN OUR CONSTANT EFFORTS FOR IMPROVEMENT.

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LED TV TRAINER



“CROWN” made LED TV Trainer to study the following :

- 1) Study of different parts of LED TV.
- 2) Study of different functions of LED TV.
- 3) Study of different faults in LED TV .

SPECIFICATIONS:

- 1) Operating Supply : 12V/2A DC
- 2) AVI, RF, USB, HDMI, VGA Input terminals & audio output terminals.
- 3) System PAL/SECAM
- 4) Status displaying method : on screen display
- 5) Function adjustment indicator : Menu display.
- 6) RF arial input : 75 ohm unbalanced
- 7) AVI video input : 75 ohm, 1.0Vp-p, RCA.
- 8) AVI audio input : 10K ohm, 0.5Vrms.
- 9) 7 control panel switches (PWR, CH₊, V₊ ,MENU & INPUT) & Remote Control.
- 10) 20 fault switches at different stages.

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