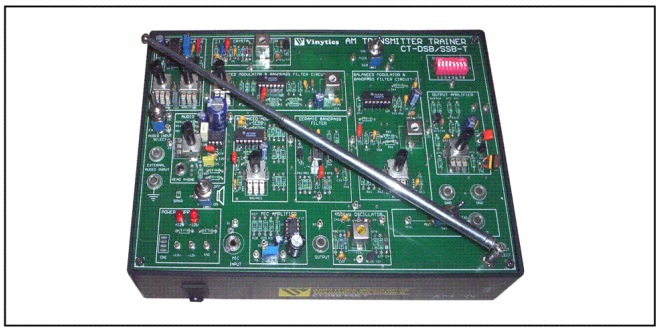
CT-DSB/SSB-T

DSB/SSB AMPLITUDE MODULATION (AM) TRANSMITTER TRAINER



SILENT FEATURES

- On board variable frequency audio oscillator, carrier frequency generator, DSB& SSB modulator, Band pass filter, Audio & RF amplifiers
- Onboard Test Points & Fault Switches
- On board audio jacks provided for Microphone and Earphone connection
- Onboard speaker provided for Audio
- Onboard Transmitting antenna

TECHNICAL SPECIFICATIONS

- **Audio Oscillator (Sine Wave Generator) with variable freq. & amp. :**
  Frequency range : 300 Hz to 3.4KHz **(100 Hz to 10KHz OPTIONAL)**
  Amplitude : 0 to 2 Vp-p
- **Transmitter Amplifier Output** : (Gain adjustable) DSB-1MHz, SSB-1.445MHz, connected to Antenna/cable
- **Audio Input** : Audio Pre-amplifier with microphone input.
- **Audio output** : Amplifier with speaker-headphone
- **Modulator** : (Balance Modulator with Band Pass Filter-1MHz)
  Modulation : Amplitude Modulation, Double Side Band, Single Side Band
- **Carrier Input** : Crystal controlled 1Hz to 1000 KHz
- **Modulating Input** : 0.1 to 100 KHz
- **Carrier Null** : Adjustable
- **Output Amplitude** : Adjustable
- **Ceramic Band Pass Filter** : Centre Frequency : 455 KHz
- **Band Width** : 10 KHz +/- 3 KHz
- **Band Pass Filter** : Central Frequency : 1.455 KHz
- **Fault Switches** : 8 nos. through 8 way DIP switch for troubleshooting at different blocks
- **Test Points** : More than 30
- **Antenna** : MW coil Antenna
- **Cabinet** : Enclosed in ABS plastic cabinet with detachable cover
- **Power** : 220V AC ±10%, 50/60Hz mains operated
- **Accessories :** Set of Patch Cords, User's manual

LIST OF EXPERIMENTS

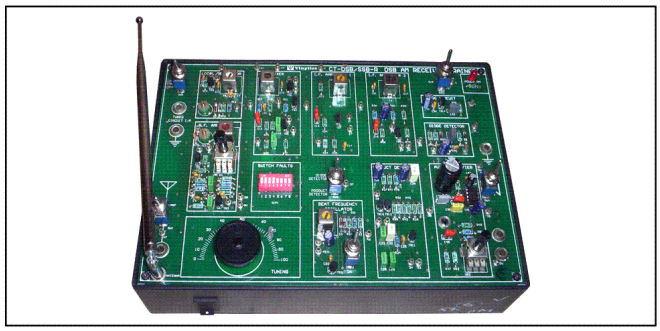
- Study of carrier frequency generation
- Study of Balance Modulator and Band Pass Filter for DSB AM Generation
- Study of Balanced Modulator and Ceramic Band Pass Filter for SSB AM Generation
- Study of tuned amplifier for AM transmission

OPTIONAL ACCESSORIES

- Multimedia interactive computer based training manual

CT-DSB/SSB-R

DSB/SSB AMPLITUDE MODULATION (AM) RECEIVER TRAINER



SILENT FEATURES

- On board variable capacitor tuning, Local Oscillator, BFO, RF amplifier, Mixer, If amplifier, Detectors, AGC, Audio output amplifier
- Onboard Test Points & Fault Switches
- On board audio jacks provided for Microphone and Earphone connection
- Onboard Receiving antenna

TECHNICAL SPECIFICATIONS

- **Receiver Principle** : Superheterodyne
- **Frequency range**: 525KHz to 1625 KHz
  Optional Frequency : 400KHz to 1.5 M
- **Intermediate Frequency** : 455 KHz
- **Inputs**: RF Signal
- **Output** : IF frequency 455 KHz adjustable
- **RF Amplifier** with variable gain
- **Mixer(Frequency converter) :** Input : Local Oscillator & RF Output frequency: 455 KHz adjustable
- **Local Oscillator :** Output signal : Sine wave for local Osc. Input. Frequency: From 900KHz to 2.2 MHz gang tuned, Amplitude: Adjustable from 0 – 2 V p-p, Output Impedance: 50 Ohms
- **Ist IF & IInd IF Amplifier:** Central frequency: 455 KHz, Load Impedance: Variable R-L-C
- **Gain** : Automatic Gain Control, Gain 1-43 dB & Gain 2–47dB
- **Diode Envelope Detector**: Detection of the positive and negative envelope with variable R-C filter DSB
- **Product Detector** :Operating frequency: Adjustable from 400KHz to 500KHz
- **SSB Input Amplitude** : 1 Volt p-p
- **Audio Output** :Amplifier with Headphone, Audio Amplifier Gain: 20 dB
- **Fault Switches** : 8 nos. through 8 way DIP switch for troubleshooting at different blocks
- **Test Points** : More than 30
- **Receiving Media** :MV Coil antenna & via cable
- **Cabinet** : Enclosed in ABS plastic cabinet with detachable cover
- **Power** : 220V AC ±10%, 50/60Hz mains operated
- **Accessories :** Set of Patch Cords, User's manual

LIST OF EXPERIMENTS

- Study of DSB and SSB AM Reception & detection by diode / product detectors
- Study of AGC
- Study of receiver tuned circuits
- Study of sensitivity, selectivity & fidelity of receiver

OPTIONAL ACCESSORIES

- Multimedia interactive computer based training manual

PRODUCT SELECTION GUIDE

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PRODUCT SELECTION GUIDE

CT-FMTR

FM TRANSMITTER & RECEIVER TRAINER (FREQUENCY MODULATION & DEMODULATION TRAINER)

SILENT FEATURES

- On board Audio Oscillator FM Modulator, Demodulator, Low Pass Filter, Amplitude Limiter & Filter Sections
- Onboard Test Points & Fault Switches
- On board audio jacks provided for Microphone and Earphone connection
- Onboard speaker provided for Audio
- Onboard Transmitting antenna

TECHNICAL SPECIFICATIONS

- **Audio Oscillator** : With adjustable Amplitude and Frequency (300Hz – 3.4kHz)
- **FM Modulator :**
  a) Reactance Modulator (with carrier Frequency adjustment)
  b) Varactor Modulator (with carrier Freq. Adjustment)
- **Mixer / Amplifier** : 1 No. (With Gain adjustment) Allows FM input signal to be amplitude modulated by a noise input prior to demodulation)
- **Transmitter O/P Frequency** : 455KHz
- **FM Demodulator** :
  a) Detuned Resonant Detector
  b) Ouadrature Detector
  c) Foster – Seeley Detector
  d) Ratio – Detector
  e) Phase Locked Loop Detector
- **Low Pass Filter** : 3.4KHz. Cut off Freq. (with adjustable gain)
- **Amplitude Limiter** : 1 No.
- **Fault Switches** : 8 nos. through 8 way DIP switch for troubleshooting at different blocks
- **Test Points** : 74
- **Interconnections :** 2/4mm banana socket
- **Cabinet** : Enclosed in ABS plastic cabinet with detachable cover
- **Power** : 220V AC ±10%, 50/60Hz mains operated
- **Accessories :** Set of Patch Cords, User's manual

LIST OF EXPERIMENTS

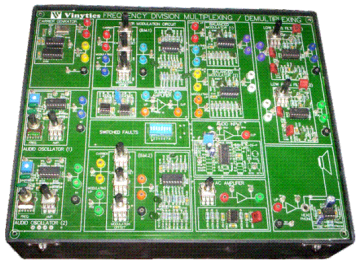
- Study of FM modulators
- Effect of noise of FM transmission
- Study of Tuned circuits
- Separate VCO circuit to demonstrate FM waveforms

OPTIONAL ACCESSORIES

- Multimedia interactive computer based training manual

CT-FDM

FREQUENCY DIVISION MULTIPLEXER / DEMULTIPLEXER TRAINER



SILENT FEATURES

- On board Balanced Modulator, Audio Oscillator, Audio Input, AC Amplifier Low Pass Filter, Carrier Generator
- Onboard Test Points & Fault Switches
- On board audio jacks provided for Microphone and Earphone connection

TECHNICAL SPECIFICATIONS

- **Channel** : Two channel FDM with one channel as audio
- **Carrier Generators** : Two Carrier Generators
- **Modulation Input Frequency** : Two separate Sine Waves
  a. 1 Khz &
  b.10KHz (of variable Frequency & variable amplitude.
- **Modulators** : DSBSC (02 nos.)
- **Demodulators** : DSBSC demodulators (02 nos.)
- **Filters** : Two separate fourth order lowpass butter worth Filter with Cut off freq of 10KHz
- **Fault Switches** : 8 nos. through 8 way DIP switch for troubleshooting at different blocks
- **Test Points** : More than 45
- **Cabinet** : Enclosed in ABS plastic cabinet with detachable cover
- **Power** : 22V AC ±10%, 50/60Hz mains operated
- **Accessories** : Set of Patch Cords, User's manual, Microphone, Headphone

LIST OF EXPERIMENTS

- Study of Carrier Frequency Generation
- Two Channel FDM with one channel as audio
- Study & demonstrate the carrier generation
- Study of AM, DSBSC Modulation
- Study of DSBSC Demodulation
- Study of Voice Communication using AM technologies

OPTIONAL ACCESSORIES

- Multimedia interactive computer based training manual

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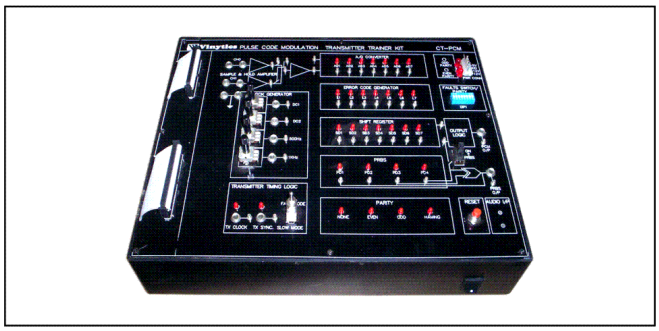
CT-PCM

TDM PULSE CODE MODULATION TRANSMITTER TRAINER



SILENT FEATURES

- Crystal controlled Clock & Sine Generator (Synchronized)
- 2 TDM Analog channels
- Error Check code option (Odd – Even parity, Hamming code)
- 4 switched faults can be used for error check & fault simulation.
- PC – PC communication via RS 232

TECHNICAL SPECIFICATIONS

- **Crystal Frequency** : 12/16 MHz
- **On – Board Generators** :
  (1) Adjustable Amplitude sine Generator of 500Hz & 1KHz (synchronised)
  1 & 2 KHz synchronized frequency (optional)
  (2) Variable Amplitude DC Level (2 nos.)
- **Input Channels** : Two
- **Multiplexing** : Time Division Multiplexing
- **Modulation** : Pulse Code Modulation
- **Sync Signals** : Pseudo Random Sync. Code Modulation
- **Error Check Code** Off – Odd – Even – Hamming
- **Operating Modes** : Fast 240 KHz / Channel (approx)
  Slow 1 KHz Channel (approx)
- **PC – PC Communication** : 2 Channel via RS 232
- **Port :** 9 Pin D – type Connector 2 nos.
- **Baud rate** : Selectable from 300 to 2400
- **Fault Switches** : 8 nos. through 8 way DIP switch for troubleshooting at different blocks
- **Test Points** : More than 45
- **Interconnections** : 2/4 mm socket
- **Cabinet** : Enclosed in ABS plastic cabinet with detachable cover
- **Power** : 220V AC ±10%, 50/60Hz mains operated
- **Accessories :** Set of Patch Cords, User's manual

LIST OF EXPERIMENTS

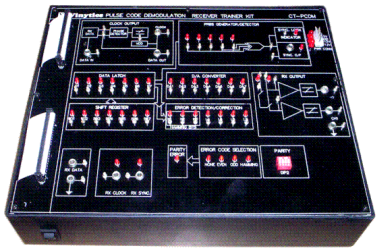
- Pulse Code Modulation
- A/D Converter, Parallel to serial Data conversion
- Time Division Multiplexing of PCM Data
- Synchronization by Pseudo random code
- Error check codes with switched faults
- Connecting modes between transmitters & receiver
- (i) Sync, clock, data line connected
- (ii) Clock, data connected - Data Only
- PC – PC communication in 3 modes

OPTIONAL ACCESSORIES

- Multimedia interactive computer based training manual

CT-PCDM

TDM PULSE CODE DEMODULATION RECEIVER TRAINER



SILENT FEATURES

- Input accepts two channel multiplexed data
- On – Board De multiplexed PCM receiver
- On – Board L.P. Filters
- Fast and slow modes do real time operation & examination of control signal and data on LED
- On – Bard Sync code Detector Error check code options
  (1) Odd or even parity single bit error detection
  (2) Hamming code – single but error detection
  (3) 4 switched faults for fault simulation
- PC – PC communication via RS 232

TECHNICAL SPECIFICATIONS

- **Input Channels :** 2 TDM serial Input
- **Demodulation :** Pulse Code Demodulation
- **Clock :** Regulation by PLL
- **Low Pass Filter :** Butter worth – 4th order 1.4KHz cutoff frequency (2 nos.)
- **Operating Speed :** Fast 240-320 KHz/Channel (approx)
- Slow 1-1.9 Hz/Channel (approx)
- **Error Correction :** Off – Odd Even Parity Hamming Code
- **Error Correction :** Off – Odd Even Parity Hamming Code
- **PC – PC Communication** : 2 Channel via RS 232
- **Port :** 9 Pin D – type Connector 2 nos.
- **Baud rate** : Selectable from 300 to 2400
- **Fault Switches** : 4 nos. through 4 way DIP switch for troubleshooting at different blocks
- **Test Points** : More than 55
- **Interconnections** : 2/4 mm socket
- **Cabinet** : Enclosed in ABS plastic cabinet with detachable cover
- **Power** : 220V AC ±10%, 50/60Hz mains operated
- **Accessories :** Set of Patch Cords, User's manual

LIST OF EXPERIMENTS

- PCM Demodulation technique
- Time Division de multiplexing of PCM data
- Clock Regeneration by PLL
- Effect of induced faults in the transmitter & receiver
- Signal recovery in 3 connecting modes between transmitting & receiver
- Clock & Frame Synchronization in PCM system
- PC – PC Communication in 3 modes

OPTIONAL ACCESSORIES

- Multimedia interactive computer based training manual

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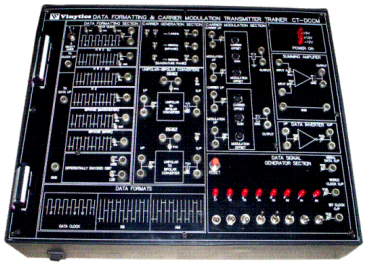
PRODUCT SELECTION GUIDE

CT-DCCM

DATA FORMATTING & CARRIER MODULATION TRANSMITTER TRAINER



SILENT FEATURES

- On – Board Carrier generation circuit (Sine waves Synchronized to transmitted data)
- On – Board in phase and quadrature Phase Carrier for QPSK modulation
- Different data conditioning formats NRZ (L), NRZ (M) RZ, Bi Phase (Manchestor), Bi Phase (Mark), AMI, RB, Differentially encoded dibit pair
- ASK, FSK, PSK, DPSK, & QPSK Carrier modulation
- Variable carrier and modulation offset
- On – Board 8 bit data source
- Variable Carrier gain
- On – Board Unipolar to Bipolar conversion
- On – Board Data Inverter

TECHNICAL SPECIFICATIONS

- **Input :** 2 Channel Time Division Multiplexed Data
- **Data Formatting :** NRZ (L), NRZ (M), AMI, RB, Biphase (Manchseter), Bi phase (Mark), differentially encoded dibit pair
- **Carrier Modulation :** ASK, FSK, PSK, DPSK, & QPSK
- **On – Board Carrier :** Sine wave Synchronized to transmit data at 1.44MHz, 960 KHz, (0 deg, phase) 960 KHz (90 deg phase)
- **Test Points** : More than 38
- **Interconnections** : 2/4 mm socket
- **Cabinet** : Enclosed in ABS plastic cabinet with detachable cover
- **Power** : 220V AC ±10%, 50/60Hz mains operated
- **Accessories :** Set of Patch Cords, User's manual

LIST OF EXPERIMENTS

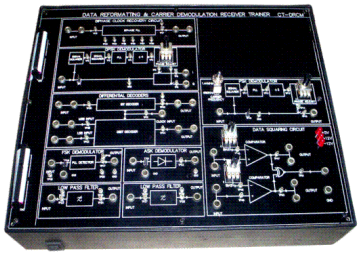
- Conversion of NRZ data to other data formats NRZ (L), NRZ (M), RZ, RB, Bi phase (Manchester), Bi phase (Mark), Differentially encoded dibit pair
- ASK, FSK, PSK, DPSK, & QPSK carrier Modulation Techniques & their comparison.

OPTIONAL ACCESSORIES

- Multimedia interactive computer based training manual

CT-DRCM

DATA REFORMATTING & CARRIER DEMODULATION RECEIVER TRAINER



SILENT FEATURES

- 7 different data conditioning formats NRZ (M) RZ, Bi phase (Manchester), Bi phase (Mark), AMI, RB, Differentially encoded dibit pair to NRZ data.
- ASK, FSK, PSK, DPSK, & QPSK carrier demodulation
- Output gives 2 channel TDM multiplexed data output
- On – Board Bi phase clock recovery circuit
- On – Board data squaring circuit and different decoder

TECHNICAL SPECIFICATIONS

- **Input** : From Transmitter Kit
- **Output** : 2 Channel TDM Multiplexed Data Stream
- **De conditioning Options** : NRZ (M), RZ, AMI, RB Bi phase (Manchester), Bi phase (Mark), differentially encoded dibit pair to NRZ (L)
- **Carrier Demodulation** :
  ASK Rectifier Diode
  FSK PLL Detector
  PSK & DPSK Square Loop Detector
  QPSK Fourth Power Loop Detector
- **Bi phase clock recovery** : by PLL
- **Test Points** : More than 50
- **Interconnections** : 2/4 mm socket
- **Cabinet** : Enclosed in ABS plastic cabinet with detachable cover
- **Power** : 220V AC ±10%, 50/60Hz mains operated
- **Accessories :** Set of Patch Cords, User's manual

LIST OF EXPERIMENTS

- Study of conversion of different data formats to NRZ data formats
- Various carrier Demodulation Techniques ASK, FSK, PSK, DPSK, & QPSK

OPTIONAL ACCESSORIES

- Multimedia interactive computer based training manual

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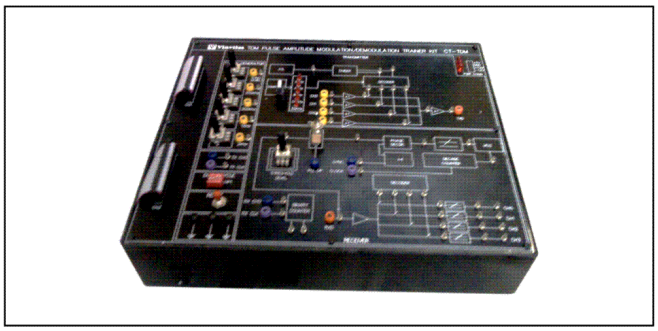
CT-TDM

TDM PULSE AMPLITUDE MODULATION TRANSMITTER TRAINER



SILENT FEATURES

- Crystal controlled Clock
- On – Board Sine Generator (Synchronized)
- On – Board Pulse Generator
- 4 Analog input Channels samples and Time Division Multiplexed
- Pulse Duty cycle selected
- 4 Channel De multiplexer
- Generation of clock at Receiver by PLL system
- 4th order Butterworth L.P. Filters

TECHNICAL SPECIFICATIONS

- **Crystal Frequency :** 6.4/8 MHz
- **Analog Input channel :** 4
- **Multiplexing :** Time Division Multiplexing
- **Modulation :** Pulse Amplitude Modulation
- **On – Board Analog Signal :**
  250 Hz, 500 Hz, 1 KHz, 2KHz
  500 Hz, 1 KHz, 2KHz, 4KHz (optional)
- **Sampling Rate :** 16 KHz / Channel
- **Sampling Pulse :** With Duty Cycle variable from 0 – 90% in decade steps
- **Clock Resistance at Receiver :** Using PLL
- **Low Pass Filter cut – off Freq. :** 3.4 KHz
- **Fault Switches** : 4 nos. through 4 way DIP switch for troubleshooting at different blocks
- **Test Points** : More than 50
- **Interconnections** : 2/4 mm socket
- **Cabinet** : Enclosed in ABS plastic cabinet with detachable cover
- **Power** : 220V AC ±10%, 50/60Hz mains operated
- **Accessories :** Set of Patch Cords, User's manual

LIST OF EXPERIMENTS

- Pulse Amplitude Modulation technique
- Time Division Multiplexing and De multiplexing
- PLL as Frequency Multiplexer to Generate clock from Sync signal
- 3 modes of operation to generate original signal
  3 connections between transmitter & receiver (Clock, Sync & Information)
  2 connections (Information, Sync) Clock gen. at receiver
  2 connection (information only), clock and Sync derived at receiver
- Effect of varying duty of sampling pulse on signal reconstruction.

OPTIONAL ACCESSORIES

- Multimedia interactive computer based training manual

CT-ADM

DELTA, ADAPTIVE DELTA, & DELTA SIGMA MODULATION DEMODULATION TRAINER

SILENT FEATURES

- Both Transmitter & Receiver on same board
- Clock generation from crystal
- 4 switch selectable sampling rates
- On – Board Generators at 4 different frequencies (Synchronized)
- Separate Adjustable DC Level
- Selectable integrator gain setting (by switch or control circuit)
- On – Board 4th order butter worth L.P. Filter
- Unipoar to Bipolar conversion On – Board

TECHNICAL SPECIFICATIONS

- **Crystal Frequency** : 4.096 MHz
- **Sampling Frequencies** : 32 KHz, 64KHz, 128KHz, 256KHz, (switch selectable)
- **On – Board Generator** : Synchronized & Adjustable Amplitude Sine wave Generator at 250Hz, 500 Hz, 1KHz, 2KHz, Separate variable D.C. Level
- **Integrator** : 4 Integrator gain setting norm, X 2 X 4 X 8
- **LP Filters** : 4th order Butterworth (3.4 KHz cut off frequency)
- **Test Points** : More than 55
- **Interconnections** : 2/4 mm socket
- **Cabinet** : Enclosed in ABS plastic cabinet with detachable cover
- **Power** : 220V AC ±10%, 50/60Hz mains operated
- **Accessories :** Set of Patch Cords, User's manual

LIST OF EXPERIMENTS

- Delta Modulation & Demodulation
- Effect of slope overload and increased integrator gain in Delta Modulation
  Adaptive Delta Modulation & Demodulation
- Delta Sigma Modulation & Demodulation
- Amplitude overload in Delta Sigma Modulation

OPTIONAL ACCESSORIES

- Multimedia interactive computer based training manual

PRODUCT SELECTION GUIDE

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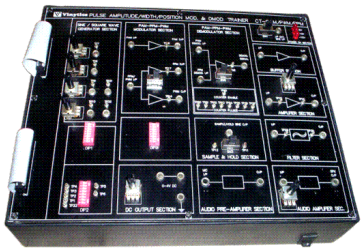
PRODUCT SELECTION GUIDE

CT-PAM/PWM/PPM

PULSE AMPLITUDE/PULSE WIDTH/PULSE POSITION MODULATION & DEMODULATION TRAINER



SILENT FEATURES

- PAM – PPM – PWM Modulation & Demodulation techniques, using natural & Flat – top sampling
- Analog sample, sample & Hold and Flat – Top output
- Selectable 4 different sampling pulse frequencies on board
- Voice communication using dynamic microphone & speaker
- On – Board Filter and AC Amplifier
- 8 switched faults

TECHNICAL SPECIFICATIONS

- **Pulse Modulation Techniques** :
  1. Pulse Amplitude Modulation
  2. Pulse Width Modulation
  3. Pulse Position Modulation
- **On – Board sampling frequencies** : 8 KHz, 16 KHz, 32KHz, 64 KHz
- **On – Board Generator** :
  1. Sine Waver : 1 KHz & 2 KHz (Gain Adjustment)
     250Hz & 500Hz (Optional)
  2. Square Wave : 1 KHz & 2 KHz (Optional)
- **Low Pass Filter** : 4th order BW Filter
- **Voice Communication** : Voice Link using dynamic mike & speaker
- **AC Amplifier** : With Adjustable Gain Control
- **DC Output** : 0-4V (variable)
- **Fault Switches** : 4 nos. through 4 way DIP switch for troubleshooting at different blocks
- **Test Points** : More than 25
- **Interconnections** : 2/4 mm socket
- **Cabinet** : Enclosed in ABS plastic cabinet with detachable cover
- **Power** : 220V AC ±10%, 50/60Hz mains operated
- **Accessories :** Set of Patch Cords, User's manual

LIST OF EXPERIMENTS

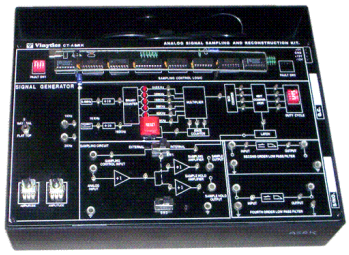
- PAM using Natural & Flat Top sampling
- Sample & Hold Flat – Top Output in PAM
- PPM Using DC & AS (sine wave) Modulating signals
- Pulse Position Demodulation
- Pulse Width Modulation & Demodulation

OPTIONAL ACCESSORIES

- Multimedia interactive computer based training manual

CT-ASRK

ANALOG SIGNAL SAMPLING & RECONSTRUCTION TRAINER



SILENT FEATURES

- Crystal controlled Pulse Generator
- Demonstrates Sampling and Reconstruction as per Nyquist criterion
- On – Board Analog Generator (Synchronized)
- 5 selectable sampling frequencies
- Sampling Pulse Duty Cycle selectable
- Internal / External sampling input selectable
- Separate sample and sample/hold outputs
- On – Board 2nd order and 4th order L.P filter

TECHNICAL SPECIFICATIONS

- **Crystal Frequency** : 6.4 Mhz
- **Sampling Frequency** : 2,4,8,16 & 32 KHz (Switch Selectable)
- **On – Board Generator** : Synchronized 1 KHz Sinewave (5 Vpp)
- **Duty Cycle** : 0 – 90% in decade steps (switch Selectable)
- **Low Pass Filters** : Butterworth 2nd & 4th Order Filter Cut – off frequency 3.4 KHz
- **Fault Switches** : 8 nos. through 4 way DIP switch for troubleshooting at different blocks
- **Test Points** : More than 50
- **Interconnections** : 2/4 mm socket
- **Cabinet** : Enclosed in ABS plastic cabinet with detachable cover
- **Power** : 220V AC ±10%, 50/60Hz mains operated
- **Accessories :** Set of Patch Cords, User's manual

LIST OF EXPERIMENTS

- Signal sampling and Reconstruction Technique.
- Aliasing & Effect on Reconstruction of signal due to various sampling frequencies
- Effect of Amplitude of Reconstructed Signal by varying sampling Pulse duty Cycle in Sample & Sample/Hold output
- Comparison of 2nd & 4th order butter worth Filters
- Signal Sampling and Reconstruction using External Sampling input

OPTIONAL ACCESSORIES

- Multimedia interactive computer based training manual

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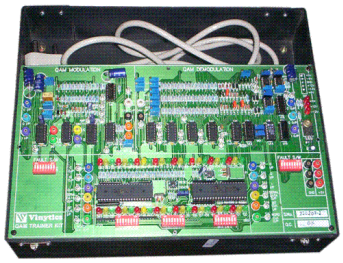
CT-QAM

QAM TRAINER



SILENT FEATURES

- On – Board 24 data bit generator
- On – Board 4 phase generator (sine0, cosine0, -sine & -cosine i.e., 0°, 90°,180° 270°)
- On – Board Tribit Encoder - Decoder
- On – Board data switches for I, C & Q
- On – Board word clock generator
- On – Board Input / Output Buffer
- On – Board Test Points & Fault Switches

TECHNICAL SPECIFICATIONS

- **Data Speed:** Fixed greater than 4.5KHz
- **Data Format:** Synchronous with carrier
- **Data Sequence :** 24 bit User Selectable data with the help of 3x8 Dip Switches
- **Data Coding:** Tri-bit data coding for generating C, Q and I signals from 24 bit user data
- **Sine & Cosine Carrier Generator:** 4.5KHz(approx.)
- **Fault Switches** : 4 nos. through 4 way DIP switch for troubleshooting at different blocks
- **Test Points** : More than 35
- **Interconnections** : 2/4 mm socket
- **Cabinet** : Enclosed in ABS plastic cabinet with detachable cover
- **Power** : 220V AC ±10%, 50/60Hz mains operated
- **Accessories :** Set of Patch Cords, User's manual

LIST OF EXPERIMENTS

- To study and measure the Data Encoding
- To describe the bit splitting into Di-bit and Tri-bit
- To study and analysis of BPSK modulation
- To study and analysis of QPSK modulation
- To study and analysis of QAM modulation
- To study and analysis of QAM demodulation

OPTIONAL ACCESSORIES

- Multimedia interactive computer based training manual

CT-TLT

TRANSMISSION LINE TRAINER

SILENT FEATURES

- On board line, terminating resistances and test generators
- Functional blocks indicated on board mimic
- Built in Power Supply
- On board Test points

TECHNICAL SPECIFICATIONS

- **Transmission Line** : Coxial cable 100m (25m×4)
- **Impedance Matching Resistances** : 0-100W, 2 Nos.
- **Test Generators** : Sine wave 40KHz-400KHz (Low Range)
- Square wave 400KHz-4MHz
- **Test Points** : More than 10
- **Interconnections** : 2/4 mm socket
- **Cabinet** : Enclosed in ABS plastic cabinet with detachable cover
- **Power** : 220V AC ±10%, 50/60Hz mains operated
- **Accessories :** Mains cord, Set of patch cords Manual, BNC-BNC Cable, BNC-Crocodile Cable

LIST OF EXPERIMENTS

- Measurement with Matched, Short & Open end of the line.

(A) Measurement of line properties.

(B) Measurement of line attenuation

(C) Frequency characteristics of line

(D) Input impedance of the line

(E) Measurement of stationary waves

(F) Phase shift along the line

(G) Fault localization within the line

(H) Line in pulsed condition.

OPTIONAL ACCESSORIES

- Multimedia interactive computer based training manual

PRODUCT SELECTION GUIDE

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PRODUCT SELECTION GUIDE

CT-MDCD

MULTIPLEXER / DEMULTIPLEXER & CODER / ENCODER TRAINER

SILENT FEATURES

- Functional blocks indicated on board mimic
- Built in Power Supply
- Crystal Controlled Clock
- 4 Channel TDM (Analog)
- 16 Channel TDM (Digital)
- Manchester Coding and Decoding
- Pulse Position Modulation
- On board Test points

TECHNICAL SPECIFICATIONS

- **Crystal Frequency** : 4.096 MHz
- **Analog Input Channels** : 4
- **Digital Input Channels** : 16
- **Onboard Analog Signals** : 250Hz, 500Hz, 1KHz, 2KHz (Adjustable Amplitude)
- **Onboard Digital Outputs** :
  1.16 Square Wave Frequencies (1KHz to 2MHz)
  2. Clock Generator
  3. 8 Bit Data
- **Modulation** : Pulse Position Modulation
- **Multiplexing** : Time Division Multiplexing (4 Channel Analog and 16 Channel Digital)
- **Coding** : Manchester Coding and Decoding
- **Test Points** : More than 27
- **Interconnections** : 2/4 mm socket
- **Cabinet** : Enclosed in ABS plastic cabinet with detachable cover
- **Power** : 220V AC ±10%, 50/60Hz mains operated
- **Accessories :** Set of Patch Cords, User's manual

LIST OF EXPERIMENTS

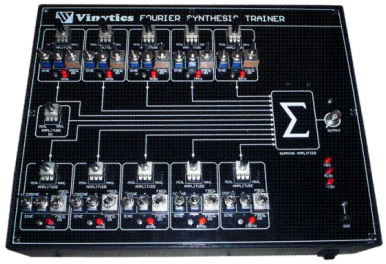
- Study of 4 - Channel Time Division Multiplexing
- Study of 16 - Channel Time Division Multiplexing and Demultiplexing
- Study of 16 - Channel Time Division Multiplexing and Demultiplexing
- Study of Pulse Position Modulation/Demodulation
- Study of Manchester Coding and Decoding

OPTIONAL ACCESSORIES

- Multimedia interactive computer based training manual

CT-FST

FOURIER SYNTHESIS SYSTEM TRAINER



SILENT FEATURES

- VLSI Based Training System
- On board digitally synthesized fundamental frequency & harmonics
- On board DC Generators
- Digitally controlled select switch for Harmonic
- On board Summing Amplifier
- Individual Gain Control
- On board sine, Cosine selection
- On board Phase Reversal provision
- Built in Power Supply
- Functional Blocks indicated on Mimic Board

TECHNICAL SPECIFICATIONS

- **Harmonic Generation Technique :** Direct Digital Synthesis
- **Eleven Input Summing Amplifier :** 1 No.
- **Fundamental Frequency :** 1 KHz
- **Harmonics Generation :** 9 Harmonics, ranges from 2 KHz to 10 KHz
- **Controllable gain :** For individual frequency component domain
- **Digital Phase control :** Of relative phases between fundamental and harmonics
- **On BoardWave forms :** 0°(sine), 90°(cosine), 180°(-sine), 270°(-cosine)
- **Waveform level (max) :** 5Vpp (Approximately)
- **DC constant generation** : -5V to +5V (approximately)
- **Cabinet** : Enclosed in ABS plastic cabinet with detachable cover
- **Power** : 220V AC ±10%, 50/60Hz mains operated
- **Accessories :** Set of Patch Cords, User's manual

LIST OF EXPERIMENTS

- To construct a triangular wave with the help of fundamental frequency and its harmonic component
- To construct a rectangular sawtooth wave with the help of fundamental frequency and its harmonics component
- To construct a square wave with the help of fundamental frequency and its harmonic component
- To construct an absolute value sine wave with the help of fundamental frequency and its harmonic component
- To construct Half sine wave with the help of fundamental frequency and its harmonic component
- To construct AM wave with the help of 3 frequency components

OPTIONAL ACCESSORIES

- Multimedia interactive computer based training manual

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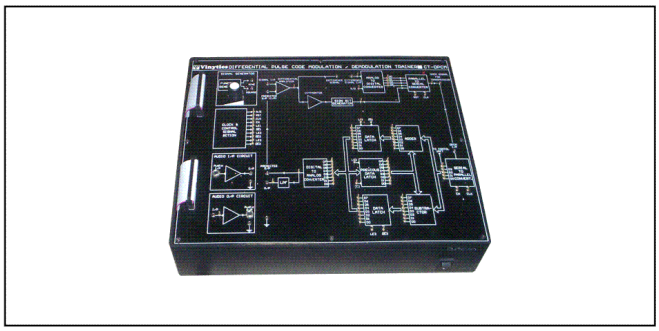
CT-DPCM

DIFFERENTIAL PULSE CODE MODULATION & DEMODULATION TRAINER



SILENT FEATURES

- On – Board Signal Generator
- On – Board Clock and Control Signal
- On – Board DPCM Transmitter & Receiver
- On – Board Audio Input & Audio Output
- On – Board signal processing & complete data and control flow
- On board audio jacks provided for Microphone and Earphone connection
- On – Board test points

TECHNICAL SPECIFICATIONS

- **Signal generator (Sine and Square) :** O/P frequency range : 300 Hz to 3.4 KHz
- **Control signals :** R/W for ADC, reset, Latch enables, OEs
- **Sampling frequency :** 8 KHz
- **Bits per sample :** 5 bits including sign bit
- **Bandwidth Improvement Compared to 8 bit PCM :** 3 bits per sample
- **Audio** : Onboard Audio I/P & Audio O/P
- **Test Points** : More than 75
- **Interconnections** : 2/4 mm socket
- **Cabinet** : Enclosed in ABS plastic cabinet with detachable cover
- **Power** : 220V AC ±10%, 50/60Hz mains operated
- **Accessories :** Set of Patch Cords, User's manual

LIST OF EXPERIMENTS

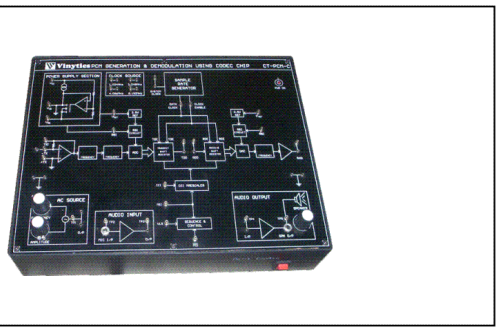
- Study of Differential Pulse Code Modulation and Demodulation Technique
- To verify experimentally that DPCM is a Differentiation Process
- To establish voice link using DPCM technique

OPTIONAL ACCESSORIES

- Multimedia interactive computer based training manual

CT-PCM-C

PULSE CODE MODULATION & DEMODULATION TRAINER USING CODED CHIP



SILENT FEATURES

- On-board Power Supply section
- On-board clock generation
- On-board signal generation
- Audio interface for PCM coding and decoding
- Low voltage requirement for operation
- On-board test points
- Variable sampling rate as per system clock used

TECHNICAL SPECIFICATIONS

- **Audio codec** : PCM Codec Filter Mono Circuit
- **Inputs** : Single ended
- **Number of bits per channel** : 16
- **Sampling Rate** : 64, 32, 16 and 8 KHz
- **System clock** : Onboard
- **Clock Source** : On-board
- **Analog Signal Source** : Sinusoidal
- **Frequency** : Max. 10KHz (approximately)
- **Amplitude** : 0 to 5 V (peak to peak)
- **Test Points** : More than 25
- **Interconnections** : 2/4 mm socket
- **Cabinet** : Enclosed in ABS plastic cabinet with detachable cover
- **Power** : 220V AC ±10%, 50/60Hz mains operated
- **Accessories :** Set of Patch Cords, User's manual

LIST OF EXPERIMENTS

- Study of PCM Generation and Demodulation of Analog Signal
- Study of PCM Generation and Demodulation of Speech Signal

OPTIONAL ACCESSORIES

- Multimedia interactive computer based training manual

PRODUCT SELECTION GUIDE

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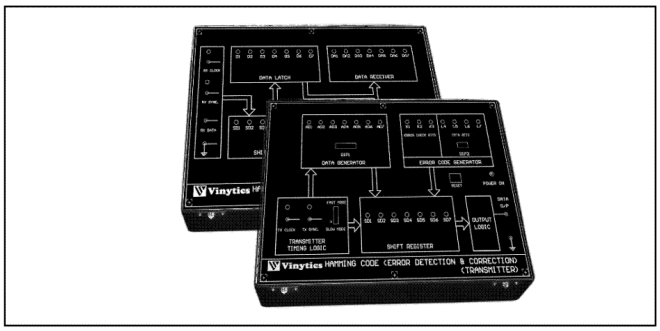
PRODUCT SELECTION GUIDE

CT-HCDT

HAMMING CODE (ERROR DETECTION CORRECTION) TRAINER



SILENT FEATURES

- Inbuilt power supply
- Separate unit for transmitter & receiver
- Onboard test points at various points for observe and measure the signal
- **Interconnections** : 2/4 mm socket
- **Cabinet** : Enclosed in ABS plastic cabinet with detachable cover
- **Power** : 220V AC ±10%, 50/60Hz mains operated
- **Accessories :** Set of Patch Cords, User's manual

TECHNICAL SPECIFICATIONS

(Transmitter Unit)

- Onboard transmitter clock and Sync. (Fast and Slow mode)
- On Board Modulating Digital Data signal generator to generate any binary
- input word with Bit clock & Word Clock
- Word Length : 7 Bits
- On Board check bits: Three bits and Four bits data
- On Board Noise inserting circuit through four bit error generator
- Onboard seven bit shift register
- To generate digital data word with four bit data & three parity check bits

(Receiver Unit)

- Onboard seven bit shift register
- Onboard Seven bit data latch register
- Single bit error detection & correction
- To receive digital data word with four data & three parity check bits

LIST OF EXPERIMENTS

- To insert noise in digital data
- To generate digital data word (7 Bits) with No parity bits.
- To generate digital data word with four data & three parity check bits.
- To insert error in any one bit in received data word.
- To generate & Detect Parity bits and use it to correct error.
- To detect the error and correct it using Hamming Codes

OPTIONAL ACCESSORIES

- Multimedia interactive computer based training manual

CT-QPSK

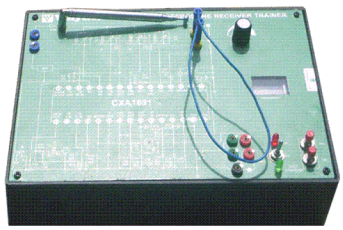
QUADRATURE PHASE SHIFT KEYING MODULATION AND DEMODULATION TRAINER

TECHNICAL SPECIFICATIONS

- To study the QPSK Modulation & Demodulation
- Circuit diagram printed on pcb
- Built in Carrier Generator
- Built in Modulating Signal Generator
- QPSK Modulator
- QPSK Demodulator
- Interconnection : 2/4mm banana sockets
- DC Supply : Built in IC regulated power supplies
- 220V ±10%, 50Hz mains operated
- Enclosed in an attractive ABS plastic cabinet with cover
- Standard Accessories : User's Manual with patch cords

CT-SRT

SUPERHETERODYNE RADIO RECEIVER TRAINER



TECHNICAL SPECIFICATIONS

- To study FM Radio receiver technique
- Circuit diagram printed on pcb
- Frequency Range : 88MHz to 108MHz
- Onboard Fault Creation facility
- Onboard antenna provided to reduce noise in signal
- Onboard potentiometer for volume control
- Onboard toggle switch for battery charging
- Interconnection : 2/4mm banana sockets
- DC Supply : Built in IC regulated power supplies
- 220V ±10%, 50Hz mains operated
- Enclosed in an attractive ABS plastic cabinet with cover
- Standard Accessories : User's Manual with patch cords

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CT-AM

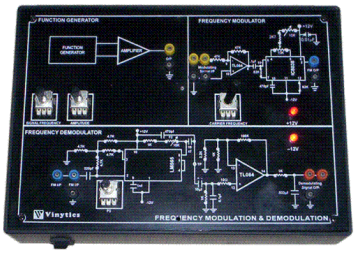
AMPLITUDE MODULATION & DEMODULATION TRAINER

TECHNICAL SPECIFICATIONS

- To study the Amplitude Modulation & Demodulation
- Circuit diagram printed on pcb
- On-board Carrier Generator
- On-board Modulating Function (Signal) Generator with variable amplitude & frequency
- On-board Amplitude Modulator
- On-board Amplitude Demodulator
- On-board potentiometer for varying depth/percent of modulation
- Interconnection : 2/4mm banana sockets
- DC Supply : Built in IC regulated power supplies
- 220V ±10%, 50Hz mains operated
- Enclosed in an attractive ABS plastic cabinet with cover
- Standard Accessories : User's Manual with patch cords

CT-FM

FREQUENCY MODULATION & DEMODULATION TRAINER

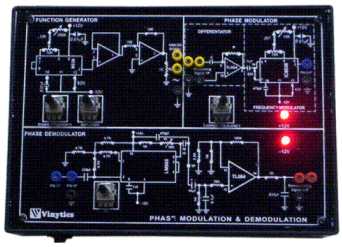


TECHNICAL SPECIFICATIONS

- To study the Frequency Modulation & Demodulation
- Circuit diagram printed on pcb
- On-board Carrier Generator
- On-board Modulating Function (Signal) Generator with variable amplitude & frequency
- On-board Frequency Modulator
- On-board Frequency Demodulator
- On-board potentiometer for varying depth/percent of modulation
- Interconnection : 2/4mm banana sockets
- DC Supply : Built in IC regulated power supplies
- 220V ±10%, 50Hz mains operated
- Enclosed in an attractive ABS plastic cabinet with cover
- Standard Accessories : User's Manual with patch cords

CT-PM

PHASE MODULATION & DEMODULATION TRAINER

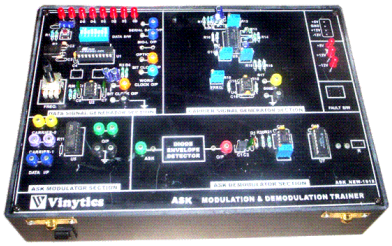


TECHNICAL SPECIFICATIONS

- To study the Phase Modulation & Demodulation
- Circuit diagram printed on pcb
- On-board Carrier Generator
- On-board Modulating Function (Signal) Generator with variable amplitude & frequency
- On-board Phase Modulator
- On-board Phase Demodulator
- On-board potentiometer for varying depth/percent of modulation
- Interconnection : 2/4mm banana sockets
- DC Supply : Built in IC regulated power supplies
- 220V ±10%, 50Hz mains operated
- Enclosed in an attractive ABS plastic cabinet with cover
- Standard Accessories : User's Manual with patch cords

CT-ASK

AMPLITUDE SHIFT KEYING MODULATION & DEMODULATION TRAINER



TECHNICAL SPECIFICATIONS

- To study the ASK Modulation & Demodulation
- Circuit diagram printed on pcb
- On-board Carrier Generator
- On-board Modulating Function (Signal) Generator with variable amplitude & frequency
- On-board ASK Modulator
- On-board ASK Demodulator
- On-board programmable word generator : cyclic 8-bit word
- Interconnection : 2/4mm banana sockets
- DC Supply : Built in IC regulated power supplies
- 220V ±10%, 50Hz mains operated
- Enclosed in an attractive ABS plastic cabinet with cover
- Standard Accessories : User's Manual with patch cords

PRODUCT SELECTION GUIDE

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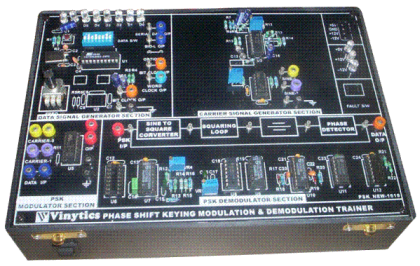
PRODUCT SELECTION GUIDE

CT-PSK

PHASE SHIFT KEYING MODULATION & DEMODULATION TRAINER

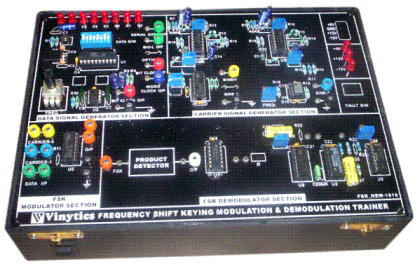


TECHNICAL SPECIFICATIONS

- To study the PSK Modulation & Demodulation
- Circuit diagram printed on pcb
- On-board Carrier Generator
- On-board Modulating Function (Signal) Generator with variable amplitude & frequency
- On-board PSK Modulator
- On-board PSK Demodulator
- On-board potentiometer for varying depth/percent of modulation
- Interconnection : 2/4mm banana sockets
- DC Supply : Built in IC regulated power supplies
- 220V ±10%, 50Hz mains operated
- Enclosed in an attractive ABS plastic cabinet with cover
- Standard Accessories : User's Manual with patch cords

CT-FSK

FREQUENCY SHIFT KEYING MODULATION & DEMODULATION TRAINER

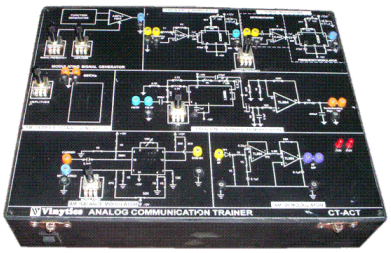


TECHNICAL SPECIFICATIONS

- To study the FSK Modulation & Demodulation
- Circuit diagram printed on pcb
- On-board Carrier Generator
- On-board Modulating Function (Signal) Generator with variable amplitude & frequency
- On-board FSK Modulator
- On-board FSK Demodulator
- On-board potentiometer for varying depth/percent of modulation
- Interconnection : 2/4mm banana sockets
- DC Supply : Built in IC regulated power supplies
- 220V ±10%, 50Hz mains operated
- Enclosed in an attractive ABS plastic cabinet with cover
- Standard Accessories : User's Manual with patch cords

CT-ACT

ANALOG COMMUNICATION TRAINER (Amplitude, Frequency, Phase) Modulation & Demodulation Techniques

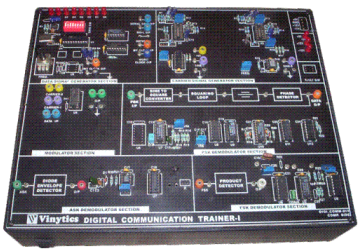


TECHNICAL SPECIFICATIONS

- It demonstrate AM, FM & PM (Phase Modulation) Modulation and Demodulation techniques
- Circuit diagram printed on pcb
- On-board synchronized Source
- On-board Modulating Function (Signal) Generator with variable amplitude & frequency
- On-board AM, FM, PM Modulator
- On-board AM, FM, PM Demodulator
- On-board potentiometer for varying depth/percent of modulation
- Interconnection : 2/4mm banana sockets
- DC Supply : Built in IC regulated power supplies
- 220V ±10%, 50Hz mains operated
- Enclosed in an attractive ABS plastic cabinet with cover
- Standard Accessories : User's Manual with patch cords

CT-DCT

DIGITAL COMMUNICATION TRAINER (ASK, FSK, PSK) Modulation & Demodulation Techniques



TECHNICAL SPECIFICATIONS

- It demonstrate ASK, FSK & PSK Modulation & Demodulation techniques
- Circuit diagram printed on pcb
- On-board synchronized Source
- On-board Modulating Function (Signal) Generator with variable amplitude & frequency
- On-board ASK, FSK, PSK Modulator
- On-board ASK, FSK, PSK Demodulator
- On-board potentiometer for varying depth/percent of modulation
- Interconnection : 2/4mm banana sockets
- DC Supply : Built in IC regulated power supplies
- 220V ±10%, 50Hz mains operated
- Enclosed in an attractive ABS plastic cabinet with cover
- Standard Accessories : User's Manual with patch cords

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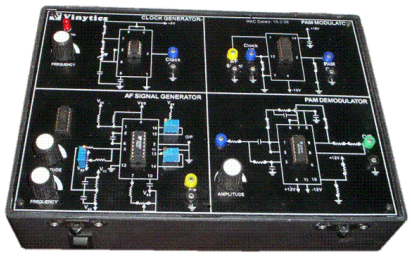
CT-PAM

PULSE AMPLITUDE MODULATION & DEMODULATION TRAINER

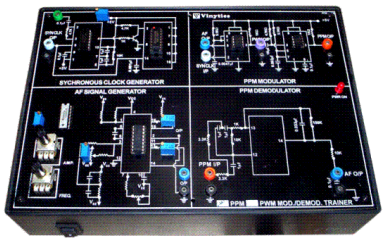


TECHNICAL SPECIFICATIONS

- To study the Pulse Amplitude Modulation & Demodulation
- Circuit diagram printed on pcb
- On-board Carrier Generator
- On-board Modulating Function (Signal) Generator with variable amplitude & frequency
- On-board Pulse Amplitude Modulator
- On-board Pulse Amplitude Demodulator
- On-board potentiometer for varying depth/percent of modulation
- Interconnection : 2/4mm banana sockets
- DC Supply : Built in IC regulated power supplies
- 220V ±10%, 50Hz mains operated
- Enclosed in an attractive ABS plastic cabinet with cover
- Standard Accessories : User's Manual with patch cords

CT-PWM

PULSE WIDTH MODULATION & DEMODULATION TRAINER

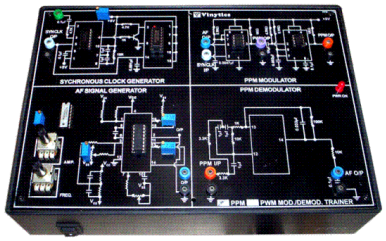


TECHNICAL SPECIFICATIONS

- To study the Pulse Width Modulation & Demodulation
- Circuit diagram printed on pcb
- On-board Carrier Generator
- On-board Modulating Function (Signal) Generator with variable amplitude & frequency
- On-board Pulse Width Modulator
- On-board Pulse Width Demodulator
- On-board potentiometer for varying depth/percent of modulation
- Interconnection : 2/4mm banana sockets
- DC Supply : Built in IC regulated power supplies
- 220V ±10%, 50Hz mains operated
- Enclosed in an attractive ABS plastic cabinet with cover
- Standard Accessories : User's Manual with patch cords

CT-PPM

PULSE POSITION MODULATION & DEMODULATION TRAINER

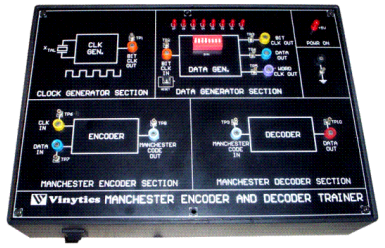


TECHNICAL SPECIFICATIONS

- To study the Pulse Posititon Modulation & Demodulation
- Circuit diagram printed on pcb
- On-board Carrier Generator
- On-board Modulating Function (Signal) Generator with variable amplitude & frequency
- On-board Pulse Position Modulator
- On-board Pulse Position Demodulator
- On-board potentiometer for varying depth/percent of modulation
- Interconnection : 2/4mm banana sockets
- DC Supply : Built in IC regulated power supplies
- 220V ±10%, 50Hz mains operated
- Enclosed in an attractive ABS plastic cabinet with cover
- Standard Accessories : User's Manual with patch cords

CT-MCDT

MANCHESTER CODING & DECODING TRAINER



TECHNICAL SPECIFICATIONS

- To Study of Manchester Encoder and Decoder Techniques
- Single unit for Manchester encoder & Manchester Decoder
- Circuit diagram printed on pcb
- Onboard 120 KHz clock generator to generate serial data
- Onboard 8 bit serial Data Generator with LED indication
- Interconnection : 2/4mm banana sockets
- DC Supply : Built in IC regulated power supplies
- 220V ±10%, 50Hz mains operated
- Enclosed in an attractive ABS plastic cabinet with cover
- Standard Accessories : User's Manual with patch cords

PRODUCT SELECTION GUIDE

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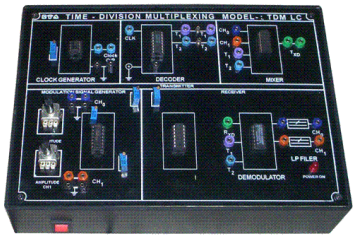
PRODUCT SELECTION GUIDE

CT-TDM-B

TIME DIVISION MULTIPLEXING & DEMULTIPLEXING TRAINER (BASIC)

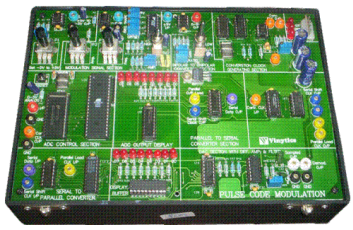


TECHNICAL SPECIFICATIONS

- To study the Time Division Multiplexing & Demultiplexing
- Circuit diagram printed on pcb
- Data Generator 1 K b/s/Channel
- Low High, Logic Low sources
- Time Division Multiplexer
- Time Division Demultiplexer
- LED indication for channel outputs
- Interconnection : 2/4mm banana sockets
- DC Supply : Built in IC regulated power supplies
- 220V ±10%, 50Hz mains operated
- Enclosed in an attractive ABS plastic cabinet with cover
- Standard Accessories : User's Manual with patch cords

CT-PCM-B

PULSE CODE MODULATION AND DEMODULATION TRAINER (BASIC)

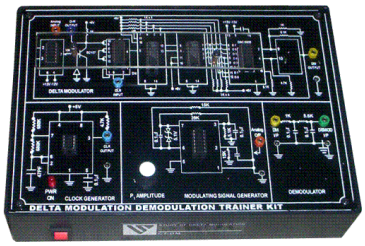


TECHNICAL SPECIFICATIONS

- To study the PCM Modulation & Demodulation
- Circuit diagram printed on pcb
- Built in TTL Clock Generator 20 KHz
- Modulating signal Generator 100Hz to 5KHz
- PCM Encoder & PCM Decoder
- Data display with LED's
- Interconnection : 2/4mm banana sockets
- DC Supply : Built in IC regulated power supplies
- 220V ±10%, 50Hz mains operated
- Enclosed in an attractive ABS plastic cabinet with cover
- Standard Accessories : User's Manual with patch cords

CT-DM

DELTA MODULATION & DEMODULATION TRAINER

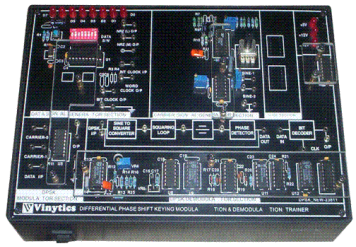


TECHNICAL SPECIFICATIONS

- To study the Delta modulation & demodulation technique
- Circuit diagram printed on pcb
- Built in TTL Clock Generator
- Modulating signal Generator 1KHz with variable amplitude
- Delta Modulator
- Delta Demodulator
- Interconnection : 2/4mm banana sockets
- DC Supply : Built in IC regulated power supplies
- 220V ±10%, 50Hz mains operated
- Enclosed in an attractive ABS plastic cabinet with cover
- Standard Accessories : User's Manual with patch cords

CT-DPSK

DPSK MODULATION & DEMODULATION TRAINER



TECHNICAL SPECIFICATIONS

- To study the DPSK Modulation & Demodulation
- Circuit diagram printed on pcb
- On-board Carrier Generator
- On-board Modulating Function (Signal) Generator with variable amplitude & frequency
- On-board DPSK Modulator
- On-board DPSK Demodulator
- On-board programmable word generator : cyclic 8-bit word
- Interconnection : 2/4mm banana sockets
- DC Supply : Built in IC regulated power supplies
- 220V ±10%, 50Hz mains operated
- Enclosed in an attractive ABS plastic cabinet with cover
- Standard Accessories : User's Manual with patch cords

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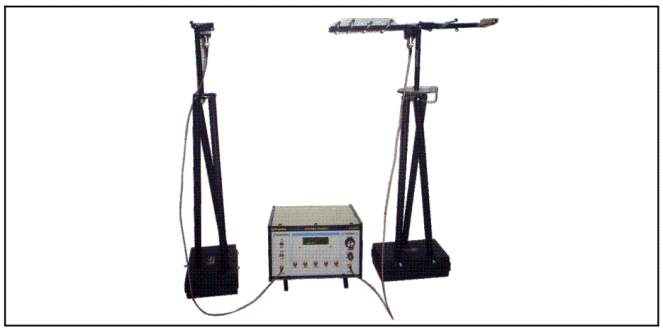
VS-AT

ANTENNA TRAINER



VS-AT PC Based Manual Antenna Trainer has been designed to provide useful tools for hands on experimentation and teaching of various commonly used antennas in VHF-UHF-Microwave band in the laboratory for students of all levels. It can be used in stand-alone mode as well as be interfaced with a computer via RS-232 interface. In this Receiving antenna is rotated manually from 0 to 360 degrees and accordingly receiving antennas signal strength can be monitored on the Receiver.

The system consists of a set of two tripods – one for mounting the transmitting antenna and another for mounting the receiving antenna, 22 Antennas, RF Transmitter/ Receiver, Antenna Plotting Software and relevant accessories/ cables.

RF TRANSMITTER UNIT

- Frequency : 100 – 1000 MHz Crystal Controlled
- Intervals : 50 MHz
- Accuracy : 0.01%
- Output Impedance : 50 Ohms
- RF Level : 90 dBuV Typical
- Output Level : Variable with Switchable Attenuator 35dB
- Modulation : 1 Khz Test Tone
- Power Supply : 220V @ 50 Hz

RF RECEIVER UNIT

- Frequency : 86 – 860 MHz PLL Controlled
- Step Size : 0.05, 0.1, 0.25, 0.5, 1, 10, 100 MHz
- Accuracy : 0.01%
- Display : 16X2 Backlit LCD
- Function s : Menu, Enter, Escape, Up & Down
- Memory Location : 1000 individual frequencies can be stored/recalled
- Input Impedance : 50 Ohms
- Measurement : RF level in dBuV with 0.1dB resolution
- Dynamic Range : 110 dB (70 dB Log + 35 dB Attenuator)
- Speaker : Inbuilt for Audio output
- Manual Mode : Data logging for antenna gain & polar/cartesian plot
- RS232 interface : Easy connectivity to PC using polar pattern plotting software
- Power Supply : 220V @ 50 Hz

EXPERIMENTS CAN BE PERFORM

- Variation of field strength with distance
- Plot radiation pattern of omni directional antenna
- Plot radiation pattern of directional antenna
- Polarization of vertical and horizontal antenna
- Study resonant and non resonant antenna and estimate VSWR and impedance
- Demonstrate reciprocity theorem of antennas
- Study current distribution along the element of antenna
- Study different antennas polar plots, radiation patterns, gain, beam width, front back ratio
- Comparison of different antennas

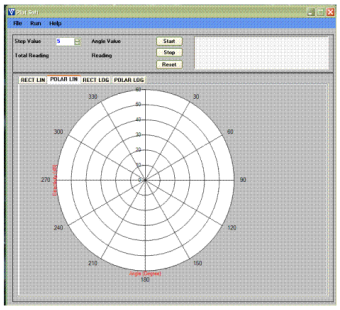
LIST OF ANTENNAS

1) Dipole L/2
2) Dipole L/4
3) Dipole 3L/2
4) Folded Dipole
5) Yagi Uda (3E)
6) Yagi Uda (4E)
7) Ground Plane with Reflector & Director
8) Slot
9) Square Loop
10) Rhombus
11) Axial Mode Helix RHCP
12) Endfire (Phase Array L/2)
13) Phase Array L/4
14) Broadside Array L/2
15) Microstrip Patch
16) Log Periodic
17) Zepplin (Horizontal End Fed)
18) Crossed Dipole LHCP
19) Crossed Dipole RHCP
20) Sleeve
21) Axial Mode Helix LHCP
22) Monopole

ACCESSORIES SUPPLIED WITH MAIN UNIT

- Tripod Stand - 02 nos.
- Screw Driver
- Antenna Elements (as per antennas supplied)
- Measuring Tape
- BNC to RF Cable - 02 nos.
- BNC/Reset Switch
- T shape BNC connector
- Serial Cable
- Software CD for Antenna Trainer
- User's manual with experiments

Software: RS 232 interface with polar plotting with log, linear cartesian and polar plots, Vi, Vr & Return loss plots, Multiple pattern overlay, Double cursor, Zoom, Colour editing, 1000 location editor, Absolute/Relative, 3dB/10dB beamwidth, Gain, Front to back, Side lobe level and position, Plot rotate, File- edit, save, get.



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