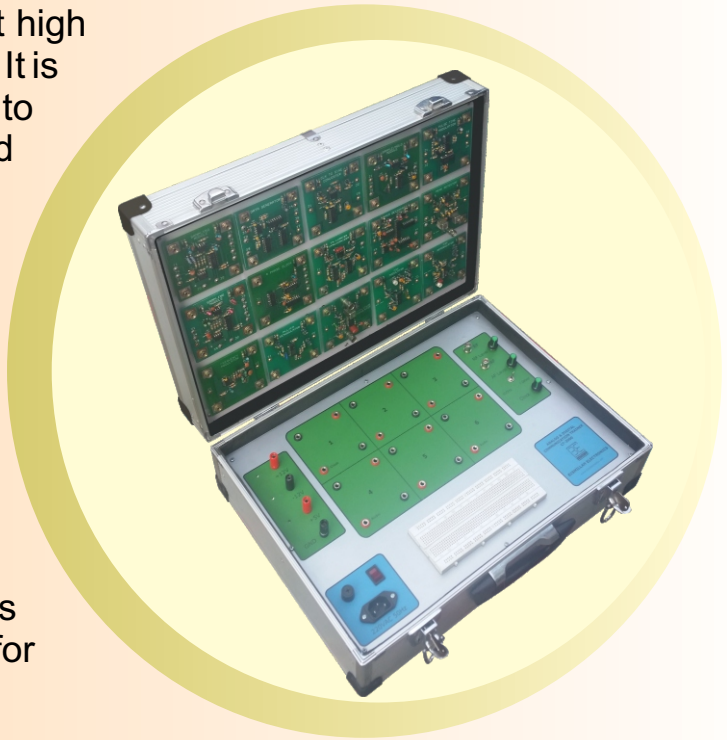
COMMUNICATION TRAINER CT-3000

TECHNICAL Bulletin

Communication Trainer CT-3000 is a low cost high performance communication teaching system. It is design to provide all the basic tools necessary to conduct experiments in the field of digital and analog communication engineering, it can also be used for R&D projects in communication.



Communication Trainer CT-3000 has been designed to act as basic tool for carrying out experiments in the field of communication for Technical Colleges & Engineering Universities undergraduate and graduate courses. CT-3000 has built in RF crystal oscillator, AF oscillator and regulated ±12 volts and +5 volts power supplies. In addition there is a wide variety of plug in modules available for different types of experiments to be performed.

This trainer is intended as a supplement to the textbook for communication course at junior, senior and graduate level students of electrical and electronics engineering, computer engineering and computer science. In addition, it can also be very useful for engineers from the industry who design and apply communication system in their products

CT-3000 Communication Trainer comprises of a base unit, set of standard 19 modules and necessary interconnecting leads to carry out about twelve experiments in the field of analog and digital communication. A comprehensive manual is also provided along with the trainer. On the request more experiment can be added in the trainer.

Features

- Input voltage 110/220VAC
- 10.24MHz crystal controlled RF signal source
- Low distortion 500Hz/1KHz AF signal source
- Clock with variable frequency 10Hz to 6KHz
- DC supply voltage +12V -12V 100mA and +5V at 1A
- 1 Solderless Breadboard
- 6 sockets for modules
- Conveniently packed in Aluminum case for inventory control

List of Experiments

- Familiarization with CT- 3000
- Study of the Sampling Theorem
- Study of two channel TDM system
- Study of Pulse Time Modulation
- Study of the FSK, PSK and ASK Modulations
- Study of PCM
- Study of Amplitude Modulation
- Study of Envelope Detector
- Study of Frequency Modulation
- AM-SSB modulation and demodulation
- Delta modulation

Add on Modules (Optional)

- Study of line coding and decoding techniques
- Demonstration of the clock generation from Manchester coded data
- BPSK / QPSK modulation and demodulation
- Clock and Data recovery module

Specifications

ONE YEAR WARRANTY

Data Generator Module
NRZ1 11010100
NRZ2 011111111
NRZ3 10101111
CLK 32KHz

4 Phase Clock Module
This module outputs pulse trains of phases 0º, 90º, 180º and 270º at J2, J3, J4 and J5 respectively when clock signal is input at terminal J1.

FM Module
This module generates frequency modulated carrier of center frequency about 88kHz at terminal J2 when AF modulating signal is applied at terminal J1.

Clock to Sine Converter Module
This module generates synchronous sine and square waves output signals with controllable amplitude and frequency 1/8th of input clock.

Sample and Hold Module
This module samples AF signal applied with sampling signal and outputs sampled signal.

Balanced Modulator
The balanced modulator multiplies two input signals. It is used in synchronous demod of PSK and AMSC signals..

Low Pass Filter Module
This module two 2nd order active LPF with cut off frequencies of 500Hz and 1KHz..

FM Carrier Synchronizer Module
This module generates AF signal phased locked with FM carrier signal input. The simultaneous display of AF and FM signals on scope results in stable waveforms on scope.

Pulse Time Modulation Module
This module generates PWM and PPM signal when sample-and-hold AF signal and sampling signal reapplied.

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