

MODULE TPS-3431

DIGITAL COMMUNICATION TRAINING SYSTEM



Objectives

This course introduces the student to Digital communication. The course provides comprehensive, hands-on experiments in digital circuits and covers: Digital Encoding & Decoding, NRZ, RZ, ASK, FSK, PSK, DPSK signal generation, transmission, reception and noise Detection, Channel Effects and FSK/DPSK.

Description

The system is stand-alone containing all the necessary electronic components, needed for performing the experiments. The system includes the SES Lab unit with a two-channel oscilloscope and a function generator, which communicates with a PC for controlling the function generator and oscilloscope display, including spectrum analysis. The built in function generator can also be operated manually, controlled by the embedded micro-controller for Sinus/Triangle, Sweep/Constant signals.



M O D U L E

TPS-3431

Digital Communication Training System

Technical characters

The trainer is in a metal case with a wide experiment platform printed circuit board (22X36 cm), which ensures easy handling and good visibility of the components. The components are located on the board with silk screen print of the analytical circuit and component symbols. The central part of the experimenting board includes all the circuit block drawings and the all the hands on components, test points and banana sockets. The protected components are located on the top side of the board panel, clearly visible to the student and covered by a sturdy transparent protecting cover. The system includes a built in power supply with +12V, +5V and variable DC voltage outlets. An included low voltage external AC power adapter feeds the system.

The system includes :

- RC Oscillator
 - RZ/NRZ Data Transmitter
 - ASK Modulator.
 - FSK Modulator.
 - DSK Modulator.
 - DPSK Modulator.
 - RF Transmitter.
 - RF Receiver.
 - ASK Demodulator.
 - FSK Demodulator.
 - DSK Demodulator.
 - DPSK Demodulator.
 - RZ/NRZ Data receiver
 - SES Lab unit with two-channel scope and function generator, which communicates with a PC for controlling the function generator and oscilloscope display, including spectrum analysis.
- PC software (Optional)

Experiments

This system enables the student to perform several experiments and covers the following topics:

- Digital Transmission
- Digital encoding Decoding
- FSK Signal Generation
- PSK Signal Generation
- ASK Signal Generation
- Noise Effects
- DPSK Signal generation
- Digital Signal receiver
- FSK Signal Detection
- PSK Signal Detection
- DPS Signal Detection
- Fault Diagnosis

A student experiment manual accompanies the system.

ComTech 3000
Communication & Telecommunication



Scientific Educational Systems