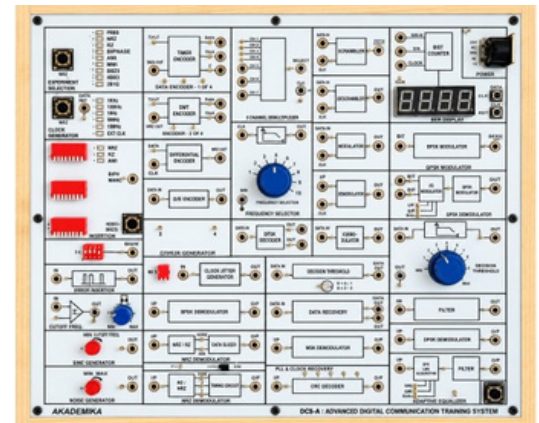


DCS-A

Advanced Digital Communication Training System



FEATURES

- Designed using advanced DDS technology on silicon
- Includes various modulation techniques like BPSK, QPSK, QAM, DPCM and ADPCM etc.
- It also demonstrates the CRC encoding and decoding
- It gives detailed knowledge of digital base band communication system
- Various test points are provided to observe the intermediate signals
- The necessary LED indications are provided to know the status of the experiments
- Mobile based interactive e-manual

SPECIFICATIONS

Clock and signal generation

Sine wave

- Fixed frequency 1KHz with 0 ~ 2V

Carrier

- Synchronized carrier of 0°phase
- Synchronized carrier of 90°phase
- Synchronized carrier of 180°phase
- Synchronized carrier of 270°phase

Data pattern

- 8-bit, 16-bit and 24-bit

PRBS generator

- 16-bit with switch selectable

Noise

- White noise 0 ~ 2Vpp

Transmitter clocks

- 16 KHz, 32 KHz, 64 KHz, 128 KHz, 256 KHz , 512 KHz and 1.024 MHz

Output :

- 4 digit, 7 segment, LED bank

Input :

- Three 8-bit switch banks for data generation

TRANSMITTER AND RECEIVER SECTION

- Differential encoder and decoder
- Dibit encoder and decoder
- Tribit encoder and decoder
- Scrambler and Unscrambler
- BPSK modulation and demodulation
- DPSK modulation and demodulation
- QPSK modulation and demodulation
- QAM modulation and demodulation
- MSK modulation and demodulation
- DPCM and ADPCM demodulation
- Digital PAM
- Error bit adder and inter symbol interference
- Low pass butterworth filters

EXPERIMENTS

- Study of BPSK modulation and demodulation
- Study of DPSK modulation and demodulation
- Study of dibit data encoder
- Study of QPSK modulation and demodulation
- Study of constellation diagram for QPSK
- Study of tribit data encoder
- Study of QAM modulation and demodulation
- Study of constellation diagram for QAM
- Study of MSK modulation and demodulation
- Study of pulse amplitude modulation of digital data for base band transmission
- Study of transmission and reception of band limited pulse train in base band transmission system
- Measurement of bit error rate using digital data
- Study of message scrambler and unscrambler
- Study of DPCM modulation and demodulation
- Study of ADPCM modulation and demodulation
- Quantization noise in DPCM
- Bit error rate (BER) measurement