

Digital Communication Trainer



RELATED PRODUCTS

- ✓ Analog Communication Trainers
- ✓ Optical Fibers Communication Trainers
- ✓ Digital and Analog Communication Trainers
- ✓ Communication Electronic Trainers
- ✓ Function Generator and Power Supply
- ✓ Multiple Signal Generator

CTD600

DESCRIPTION

Curriculum Outlines:

- Design and implementation of line code encoder and decoder.
- Design and implementation of PWM and PCM modulators.
- Design and implementation of DM and ADM modulators and demodulators.
- Design and implementation of ASK, FSK and PSK modulators and demodulators.

FEATURES

Curriculum Objectives:

- To understand the basic theory of digital communication system.
- Design and implementation ability training of digital modulator and demodulator.
- To understand the applications of digital modulator and demodulator.



CTD600-1 Line Code



Line Code Decoder

Experiment 1: Unipolar and Bipolar NRZ Signal Decoder
Type of Signal: TTL, Data Rate: 1kbps ~ 4kbps,

Experiment 2: Unipolar and Bipolar RZ Signal Decoder
Type of Signal: TTL, Data Rate: 1kbps ~ 2.5kbps, CLK: 2kHz ~ 5kHz.

Experiment 3: AMI Signal Decoder
Type of Signal: TTL, Data Rate: 50bps ~ 250bps, CLK: 100Hz ~ 500Hz.

Experiment 4: Manchester Signal Decoder
Type of Signal: TTL, Data Rate: 100bps ~ 400bps, CLK: 200Hz ~ 800Hz.

Line Code Encoder

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CTD600-2 Module PWM



PWM Demodulator

Experiment 1: Pulse Width Demodulator
Carrier Signal: 5kHz ~ 6kHz, Audio Signal: 500Hz ~ 700Hz.

PWM Modulator

Experiment 1: uA741 Pulse Width Modulator
Carrier Signal: 1.5kHz ~ 2kHz, Audio Signal: 500 z.

Experiment 2: LM555 Pulse Width Modulator
Carrier Signal: 5kHz ~ 10kHz, Audio Signal: 1kHz.

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CTD600-3 Module PCM

PCM Demodulator

Experiment 1: PCM Demodulator
Built-in Sample Frequency: 8kHz,
Built-in Operation Frequency: 2048kHz,
Audio Signal: 100Hz ~ 2kHz.

PCM Modulator

Experiment 1: PCM Modulator
Built-in Sample Frequency: 8kHz,
Built-in Operation Frequency: 2048kHz,
Audio Signal: 100Hz ~ 2kHz.



CTD600-4 Module Delta

Delta Demodulator

Experiment 1: Delta Demodulator
Type of Sample Signal: TTL CLK,
Sample Frequency: 32kHz ~ 256kHz,
Audio Signal: 1kHz ~ 3kHz.

Delta Modulator

Experiment 1: Delta Modulator
Type of Sample Signal: TTL CLK,
Sample Frequency: 32kHz ~ 256kHz,
Audio Signal: 1kHz ~ 3kHz.



CTD600-5 Adaptive Delta

Adaptive Delta Modulator

Experiment 1: Adaptive Delta Modulator
Type of Sample Signal: TTL CLK,
Sample Frequency: 32kHz ~ 128kHz, Audio Signal: 500Hz ~ 1kHz.

Adaptive Delta Demodulator

Experiment 1: Adaptive Delta Demodulator
Type of Sample Signal: TTL CLK,
Sample Frequency: 64kHz ~ 256kHz,
Audio Signal: 500Hz ~ 1kHz.



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Design and implementation of DM and ADM modulators and demodulators.

Design and implementation of ASK, FSK and PSK modulators and demodulators.

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CTD600-6 Module ASK

ASK Modulator

Experiment 1: XR 2206 ASK Modulator,
Carrier Signal: 20kHz, Data Rate: 1kbps.

Experiment 2: MC 1496 ASK Modulator,
Carrier Signal: 20kHz ~ 100kHz, Data Rate: 2kbps.

ASK Demodulator

Experiment 1: Asynchronous ASK Demodulator (I)
(Using XR2206 as the modulated ASK signal)

Carrier Signal: 20kHz, Data Rate: 200bps ~ 1kbps.

Experiment 2: Asynchronous ASK Demodulator (II)
(Using MC1496 as the modulated ASK signal)

Carrier Signal: 20kHz, Data Rate: 200bps ~ 1kbps.

Experiment 3: Synchronous ASK Demodulator

Carrier Signal: 100kHz, Data Rate: 200bps ~ 2kbps.



CTD600-7 Module FSK

FSK Modulator

Experiment 1: XR2206 FSK Modulator
Data Rate: 200bps ~ 400bps.

Experiment 2: LM566 FSK Modulator
Data Rate: 200bps ~ 400bps.

FSK Demodulator

Experiment 1: FSK Demodulator (I)
(Using XR2066 as the modulated FSK signal)
Data Rate: 200bps ~ 400bps.

Experiment 2: FSK Demodulator (II)
(Using LM566 as the modulated FSK signal)
Data Rate: 200bps ~ 400bps.



CTD600-8 Module PSK

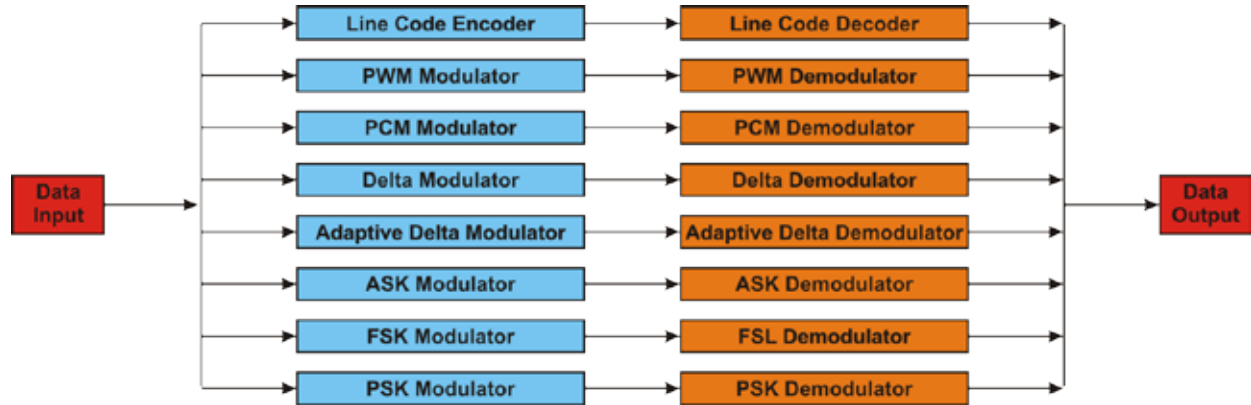
PSK Modulator

Experiment 1: PSK Modulator
Carrier Signal: 100kHz,
Data Rate: 200bps.

PSK Demodulator

Experiment 1: PSK Demodulator
Carrier Signal: 100kHz, Data Rate: 200bps.





Experiment Contents

Experiment 1 Unipolar and Bipolar NRZ Signal Encoder
Experiment 2 Unipolar and Bipolar RZ Signal Encoder
Experiment 3 AMI Signal Encoder
Experiment 4 Manchester Signal Encoder
Experiment 5 Unipolar and Bipolar NRZ Signal Decoder
Experiment 6 Unipolar and Bipolar RZ Signal Decoder
Experiment 7 AMI Signal Decoder
Experiment 8 Manchester Signal Decoder
Experiment 9 uA741 Pulse Width Modulator
Experiment 10 LM555 Pulse Width Modulator
Experiment 11 Pulse Width Demodulator
Experiment 12 PCM Modulator
Experiment 13 PCM Demodulator
Experiment 14 Delta Modulator
Experiment 15 Delta Demodulator
Experiment 16 Adaptive Delta Modulator
Experiment 17 Adaptive Delta Demodulator
Experiment 18 XR 2206 ASK Modulator
Experiment 19 MC 1496 ASK Modulator
Experiment 20 Asynchronous ASK Demodulator (I)
Experiment 21 Asynchronous ASK Demodulator (II)
Experiment 22 Synchronous ASK Demodulator
Experiment 23 XR2206 FSK Modulator
Experiment 24 LM566 FSK Modulator
Experiment 25 FSK Demodulator (I)
Experiment 26 FSK Demodulator (II)
Experiment 27 PSK Modulator
Experiment 28 PSK Demodulator

