

**Sciencetech 2153 TDM Pulse code modulation and Transmitter** demonstrates Pulse Code Modulation Technique which is most widely used in digital modulation system. Since analog modulation system is most prone to noise present in the channel and receiver, the digital modulation system is used because it is less sensitive to noise. The basis of digital modulation systems lies on pulse code modulation i.e. a particular characteristic of the pulse is varied in accordance with the information signal. In PCM system the amplitude of the sampled waveform at definite time intervals is represented as a binary code.

## Features

- Crystal Controlled Clock
- On-board Sine Wave Generator (Synchronized)
- 2 TDM Analog Channels
- PCM Transmitter
- Fast & Slow modes for real time operation and data flow examination
- Error check code options (odd-even parity, Hamming Code)
- 4 Switched faults allow different Error Check Options

## Scope of Learning

### Digital Communication System

- Study of error checks codes.

### A/D Conversion

- Study of Analog to Digital conversion.

### Digital Transmission

- Study of control signals and their timing

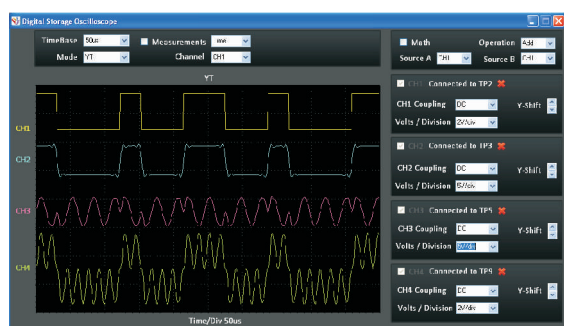
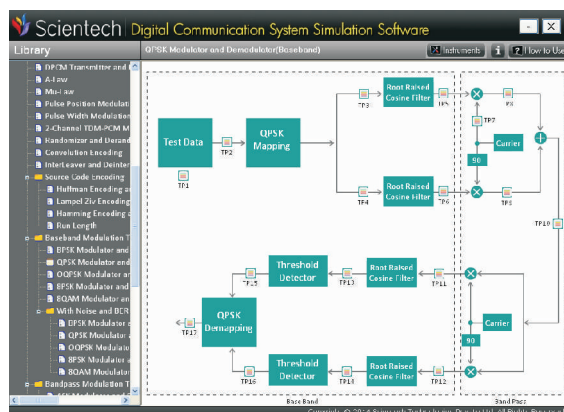
### Time Division Multiplexing

- Study of Time Division Multiplexing
- Study of Pseudo Random Sync Code Generator
- Study of three modes of transmission

### Technical Specifications

<b>Crystal Frequency</b>	: 16 MHz
<b>On Board Analog Signal</b>	: 2 KHz, 4 KHz (Sine wave synchronized to sampling pulse Adjustable amplitude and separate variable DC level)
<b>Input Channels</b>	: 2 nos.
<b>Multiplexing</b>	: Time Division Multiplexing
<b>Modulation</b>	: Pulse Code Modulation
<b>Sync Signal</b>	: Pseudo Random Sync Code Generator
<b>Error Check Code</b>	: Off - Odd - Even - Hamming
<b>Operating Mode</b>	: Fast : 320 KHz / channel approximately
<b>Slow</b>	: 1.9 Hz / channel approximately
<b>Test Points</b>	: 50 nos
<b>Interconnections</b>	: 2 mm Sockets
<b>Power Supply</b>	: 110-220 V, $\pm 10\%$ , 50 / 60 Hz
<b>Power Consumption</b>	: 4 VA approximately
<b>Dimensions (mm)</b>	: W 326 $\times$ D 252 $\times$ H 52
<b>Weight</b>	: 1 Kg approximately
<b>Included Accessories</b>	: 2mm Patch cords 16" - 05 nos Mains cord - 1 no.

**Simtel 11** - Digital Communication Interactive Software (optional)



### Topics

- Source: Signal Source, Pulse Generator, Data Generator, Delay
- Math Operations: Adder, Subtractor, Multiplier
- Natural and Flat-top Sampling
- Line Encoding and Decoding
- Delta Modulator and Demodulator
- Adaptive Modulator and Demodulator
- Sigma Delta Modulation and Demodulation
- PCM Transmitter and Receiver
- DPCM Transmitter and Receiver
- DPCM Transmitter and Receiver
- A-Law and MU-Law
- Pulse Position Modulation and Demodulation
- Pulse width Modulation and Demodulation
- 2-Channel TDM-PCM Multiplexer

For more details refer Simtel 11 Catalog