



Sciencetech TechBooks are compact and user friendly learning platforms to provide a modern, portable, comprehensive and practical way to learn Technology. Each TechBook is provided with detailed Multimedia learning material which covers basic theory, step by step procedure to conduct the experiment and other useful information.

Four Channel Analog TDM System Sciencetech TechBook 2207 is a communication system where the message signal is modulated using Pulse Amplitude Modulation and multiple access is provided using Time Division Multiplexing. The message information is encoded in the amplitude of a series of signal pulses and transmitted using Time Division Multiplexing (i.e. in different time slots).

The TechBook demonstrates following modes of operation between transmitter and receiver -

Mode 1: 3 signals communication (Clock /Sync/ Modulated Signals)

Mode 2: 2 signals communication (Sync/Modulated signals); Clock is recovered at receiver.

Mode 3: 1 signal communication (Modulated signal); Clock and Sync are recovered at receiver

Features

- Crystal controlled clock
- On-board synchronized analog Signal Generator (DC and Sine wave)
- Demonstrates sampling and reconstructed as per Nyquist criterion
- Four switch selectable sampling frequencies
- Sampling pulse duty-cycle selectable
- On-board Pulse Generator
- Four analog input channels to demonstrate Four Channel Analog TDM System
- Generation of clock at receiver by PLL
- Fourth order Butterworth Low Pass Filter

Scope of Learning

- Pulse Amplitude Modulation technique
- PLL as Frequency Multiplier to generate clock from sync signal
- Three modes of operation between transmitter and receiver (3 signals/ 2 signals/ 1 signal communication)
- Effect of varying duty cycle of sampling pulse on signal reconstruction
- Effect of different sampling frequencies on Four Channel Analog TDM System

Technical Specifications

Crystal Frequency	: 8 MHz
Analog Input Channels	: 4 channels
Multiplexing	: Time Division Multiplexing
Modulation	: Pulse Amplitude Modulation
On Board Analog Signal	: 500 Hz, 1 KHz, 2 KHz and 4 KHz (Sine wave synchronized to sampling pulse) Adjustable amplitude and separate variable DC level)
Sampling Rate	: Four sampling signals 32, 40, 50 & 80 KHz/ channel (switch selectable)
Sampling Pulse	: With duty cycle variable from 0-90% in decade steps.
Clock Regen. at Receiver:	: Using PLL
Test points	: 55 nos.
Interconnections	: 2 mm Sockets
Mains Supply	: 110-220V, 50Hz/60 Hz
Dimensions (mm)	: W 326 x D 252 x H 52
Weight	: 2.5 Kg (approximately)
Operating Conditions	: 0-40°C, 85% RH

Included Accessories

2mm Patch cord 16"-10 nos. TechBook Power Supply - 1 no
Mains cord - 1 no.