



40527 Sampling and Reconstruction demonstrates the basic scheme used to transmit an information signal. It covers very basic concepts like Nyquist criteria, role of sample amplifier, sample and hold amplifier, and duty cycle of sampling pulse while transmitting a signal. It also demonstrates signal recovery using low pass filters of different orders. 40527 has built in 1 KHz (5Vp-p) sine wave generator as onboard signal to demonstrate completely, the sampling and reconstruction technique. To understand the process for audio signal, the Audio Input and Audio Output circuits are provided on board along with mic and built in speaker. The aim is to transmit the signals in digital form and is to reproduce this information signal in analog form at the receiving end of the communication system with the help of Sampling and Reconstruction technique.

Features

- Crystal controlled pulse generator
- Demonstrates sampling and reconstruction as per nyquist criterion
- On-board synchronized analog signal generator
- Six switch selectable sampling frequencies
- Sampling pulse duty-cycle selectable
- Internal/External sampling signal selectable
- Separate sample and sample/hold outputs available
- On-board second order and fourth order low-pass filters
- Audio Input and Output links to show the transmission and reception of real time signal (audio signal)

Experiments

1. Study of Sampling and Reconstruction techniques
2. Study Nyquist criteria for Sampling and Reconstructing signal
3. Study effect of Sample amplifier and Sample and Hold amplifier on reconstructed signal
4. Study effect of Sample /Hold Circuitry on reconstructed waveform
5. Study and compare responses of 2nd order and 4th order LPFs

Technical Specifications

Crystal Frequency	:	8 MHz
Sampling Frequency	:	20, 50, 80, 100, 200 & 400 KHz (switch selectable)
On-board Generator	:	Synchronized 1 KHz sine wave (5 V) pp
Duty cycle	:	0 - 90% in Decade steps (switchselectable)
Low Pass Filters	:	2nd & 4th order Butterworth filters
Cut-off frequency	:	3.4 KHz each
Test Point	:	50 nos.
Interconnections	:	2 mm sockets
Power Consumption	:	3 VA (approximately)
Dimensions (mm)	:	W 326 x D 252 x H 52
Mains Supply	:	110-220 V, $\pm 10\%$, 50 /60 Hz

Note: Specifications are subject to change.

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Weight : 1.5 Kg. (approximately)
Operating Conditions : 0-40oC, 85% RH

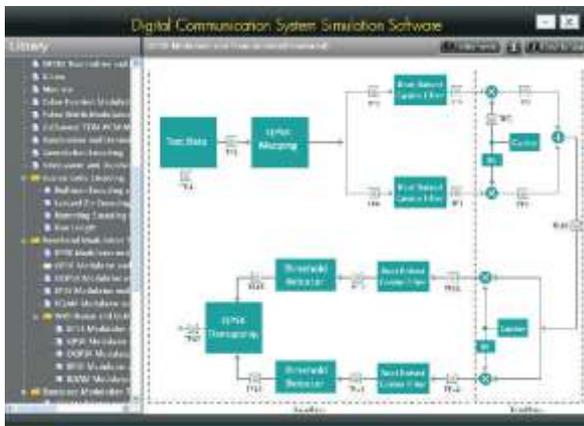
Included Accessories

2mm Patch cord 16" : 12 nos.
Power cord : 1 no.

Digital Communication Interactive Software (optional)

Topics

- Source: Signal Source, Pulse Generator, Data Generator, Delay
- Math Operations: Adder, Subtractor, Multiplier
- Natural and Flattop Sampling
- Line Encoding and Decoding
- Delta Modulator and Demodulator
- Adaptive Modulator and Demodulator



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