

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.

Sciencetech TechBook 2802 provides an extensive hands on learning on PCM, DPCM, CVSD Modulator & Demodulator.

Features

- Modulator and Demodulator on same board
- On-board DDS Signal Generator for standard and Arbitrary signals
- Selectable sampling frequencies with respective line speed
- On board Transmission effect
- On board 2nd order Butterworth Low Pass filter
- SMD LED indicators
- Can be issued just like a book for hands-on learnings

Scope of Learning (Experimentation)

PCM Modulator & Demodulator

Study and analysis of:

- Pulse Code Modulation.
- Sample & Hold output by varying the Sampling as well as signal frequency.
- Parallel to Serial conversion by varying the line speed clock.
- Single bit PCM output at different line speed clock.
- Pulse Code Demodulation.
- Serial to Parallel conversion.
- Analyze the final PCM demodulated output with Second Order Low Pass Butterworth filter .

DPCM Modulator & Demodulator

- Differential Pulse Code Modulation.
- Sample & Hold output by varying the Sampling as well as signal frequency.

Study and analysis of:

- Predictor (Differentiator) output.
- DPCM modulated output.
- Parallel to Serial conversion by varying the line speed clock.
- Single bit DPCM output at different line speed clock.
- Serial to Parallel conversion.
- Differential Pulse Code Demodulation.
- Analyze the final DPCM demodulated output with Second order Low Pass Butterworth filter.

CVSD Modulator & Demodulator

- Continuous Variable Slope Delta Modulation.
- Different step size generation at the given test points.
- Single bit PCM output.
- Continuous variable Slope Delta Demodulation.
- Analyze the final CVSD demodulated output with Second order Low Pass Butterworth filter.

Transmission effects

- Attenuator effect.
- Filter effect.
- Noise effect by varying the noise level.

Technical Specifications

Modulation & Demodulation

Techniques : PCM
DPCM
CVSD

Internal Signal Generator: Direct Digital Synthesizer

Types of Signal : Sine, Square, Triangle, Arbitrary signals
Frequency : 500Hz, 1KHz, 2KHz, 3KHz

External Signal :

Types of Signal : Sine, Square, Triangle, Arbitrary signals
Maximum Input Voltage : 3Vpp (Max.) +1.5V DC offset
Frequency : 500Hz to 3.5KHz

SMD LED Indicators : 44 nos for

DDS signal selection
DDS signal frequency selection
Sampling selection
Technique selection
Interconnect path

Transmission Effect : Attenuation (7dB & 10dB) Noise, Filter

Crystal Frequency : 8MHz

Sampling Frequencies : 4KHz, 8KHz, 16KHz, 32KHz

Line Speed : 32KHz, 64KHz, 128KHz, 256KHz

Selection Mode : Push switches

Number of Test Points : 38 nos.

Low Pass Filter : Cut-off frequency-5KHz

Product Tutorial : Online on www.ScientechLearning.com

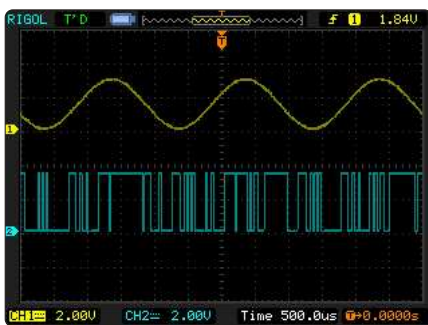
Dimensions (mm) : W 326 x D 252 x H 52

Power Supply : 110V - 260V AC, 50/60Hz

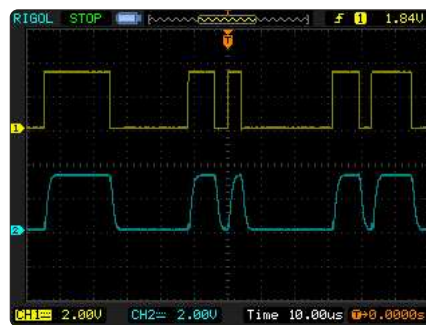
Weight : 1.5Kg (Approximately)

Operating Condition : 0-40°C, 85% RH

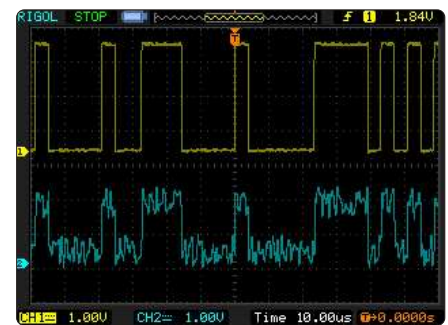
Included Contents : 2mm Patch cord - 2nos



PCM output



Filter effect



Noise effect