Scientech 2803 provides an extensive hands on learning on Delta, Adaptive Delta, Sigma Delta Modulator & Demodulator.

Features

- Modulator and Demodulator on same board
- On-board DDS Signal Generator for standard and Arbitrary signals
- Selectable Sampling Frequencies
- On board Transmission effect
- Selectable step size for Integrator

- Detailed study of granular noise and slope overloading
- On board 2nd order Butterworth Low Pass filter
- SMD LED Indicators
- Can be issued just like a book for hands-on learning

Scope of Learning (Experimentation)

Delta Modulator & Demodulator

Study and analysis of:

- Delta Modulation and Demodulation.
- Sample & Hold output by varying the Sampling as well as Signal frequency.
- Integrator output at the Modulator by varying the Sampling frequency.
- Improved Integrator output by varying the gain control frequency.
- Slope Overload distortion problem.
- Granular Noise problem.
- Single bit Delta modulated PCM output.
- Integrator output at the Demodulator.
- Analyze the final Delta demodulated output with Second order Low Pass Butterworth filter .

Adaptive Delta Modulator & Demodulator

- Adaptive Delta Modulation.
- Single bit PCM output by varying the Sampling frequency.
- Variable step register at the Modulator side.
- Accumulator and Add/Subtract at the Modulator side.
- Accumulator and Add/Subtract at the Demodulator side.
- Overcoming of Slope Overload distortion occurred in Delta Modulation by the generation of variable step size.
- Analyze the final Adaptive Delta demodulated output with Second order Low Pass Butterworth filter.

Sigma Delta First Order

- Sigma Delta Modulation of the First order.
- Sigma output after the summation of two signals.
- Integrator output by varying the Sampling frequency.
- Single bit PCM output at the Sigma Delta Modulator.
- Sigma Delta Demodulation of First order.
- Decimator filter output at the Demodulator by varying the position of the clock enable switch.
- Analyze the final Sigma Delta Demodulation output with Second order Low Pass Butterworth filter at the given test point.

Sigma Delta Second Order

- Sigma Delta Modulation of Second order.
- First order Sigma output .
- Second order Sigma output.
- Integrator output by varying the Sampling frequency.
- Single bit PCM output at the Sigma Delta Modulator.
- Sigma Delta Demodulation of Second order.
- Decimator filter output at the Demodulator by varying the position of the clock enable switch.
- Analyze the final Sigma Delta Demodulation of Second order output with Second order Low Pass Butterworth filter.

Transmission effects

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

Simtel 11 - 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
- Adaptive Modulator and Demodulator

For more details refer Simtel 11 Catalog
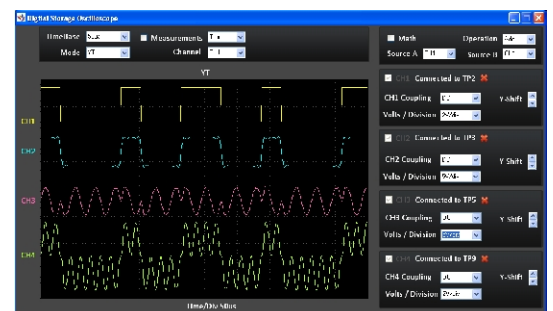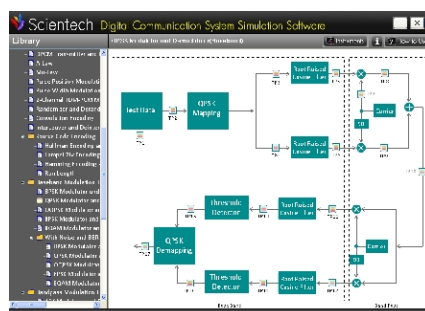
Technical Specifications

Modulation & Demodulation

Techniques	: Delta
	: Adaptive Delta
	: Sigma Delta First order
	: Sigma Delta Second order
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	: 48 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	: 16KHz, 32KHz, 64KHz, 128KHz, 256KHz
Integrator step	: Normal & 3 times
Selection Mode	: Push switches
Number of Test Points	: 46 nos
Low Pass Filter	: Cut-off frequency-5KHz
Digital Filter	: Decimation filter (16:1)
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 Conditions	: 0-40°C, 85% RH
Included accessories	: 2mm Patch cord - 2nos

Subject to Change