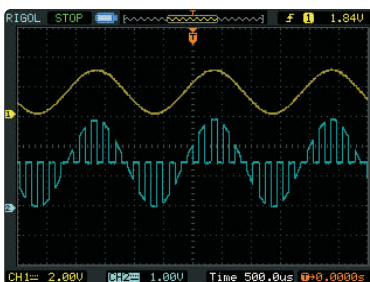


Sciencetech 2801 provides an extensive hands on learning on PAM, PPM, PWM and Line Coding Techniques.

Features

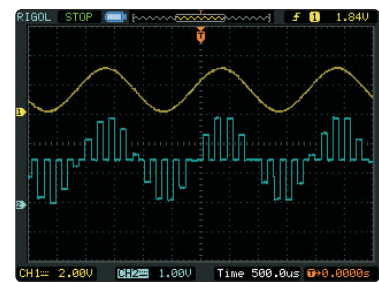
- Modulator and Demodulator on same board
- Different type of sampling, Natural, Flat top, sampled and hold
- On-board DDS Signal Generator for standard and arbitrary signals
- Selectable sampling frequencies for PAM
- Selectable Ramp frequencies for PWM and PPM
- On board 2nd order Butterworth low pass filter
- SMD LED Indicators
- Can be issued just like a book for hands-on learnings



Natural Sampled Output



PWM Output



Flat Top Sampled Output

Scope of Learning (Experimentation)

PAM Modulator & Demodulator

Study and analysis of:

- Pulse Amplitude Modulation.
- Nyquist sampling rate.
- Natural sampling with different types of message signals at different frequencies.
- Flat top sampling with different types of message signals at different frequencies.
- Sample & Hold output with different types of message signals at different frequencies.
- Under sampling by varying the message frequency and sampling rate.
- Second order Low Pass Butterworth filter.
- Pulse Amplitude Demodulation of Sample & Hold output with Second Order Low Pass Butterworth filter.
- Analyze all these Natural sampling, Flat top sampling and Sample & Hold output simultaneously and observe the difference.

Line Coding Techniques

Study and analysis of:

- Different Line Coding techniques.
- Different 8-Bit, 16-Bit and 32-Bit Pattern Generator by changing Pattern selection.
- NRZ Unipolar coding.
- NRZ Polar coding.
- RZ Bipolar coding.
- RZ Unipolar coding.
- Manchester coding.
- Analyze all types of Line coding outputs simultaneously and observe differences.

PWM Modulator & De-modulator

- Pulse Width Modulation.
- Single bit PWM output by varying the Ramp frequency and signal type.
- Pulse Width Demodulation.
- PWM demodulated output by varying the Ramp frequency.
- Sample & Hold output of demodulated PWM signal.
- Second order Low Pass Butterworth filter.
- Analyze the final PWM demodulated output with Second order Low Pass Butterworth filter.

PPM Modulator & De-modulator

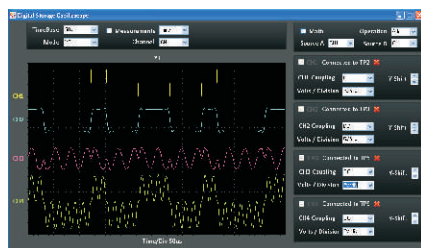
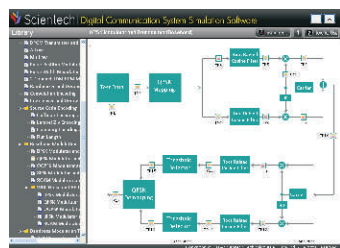
- Pulse Position Modulation.
- Single bit PPM output by varying the Ramp frequency and signal type.
- Pulse Position Demodulation.
- Sample & Hold output of demodulated PPM signal.
- Second order Low Pass Butterworth filter.
- Analyze the final PPM demodulated output with Second order Low Pass Butterworth filter.

Technical Specifications

Modulation & Demodulation

Techniques	:	PAM, PWM & PPM Line Coding Techniques
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
Sampling/Ramp Frequencies	:	1.25KHz, 2.50KHz, 5KHz, 9.80KHz, 19.53KHz, 39.06KHz, 78.13KHz
SMD LED Indicators	:	46 nos for DDS signal selection DDS signal frequency selection Sampling selection Technique Selection Interconnect path
Crystal Frequency	:	20MHz
Selection Mode	:	Push switches
Random Data	:	8 Bit/ 16 Bit/ 32 Bit (For line Coding)
Data Frequency	:	500Hz, 1KHz, 2KHz, 3KHz
Test Points	:	29 nos.
Low Pass Filter	:	Cut-off frequency-5KHz
Housing	:	Off white ABS box with tilt stand
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
Product Tutorial	:	Online on www.SciencetechLearning.com

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
- 2-Channel TDM-PCM Multiplexer

For more details refer Simtel 11 Catalog