

Indian Institute of Information Technology Allahabad

Department of Electronics and Communication Engineering

Course Name: Digital Communication

EXPERIMENT NO: 2

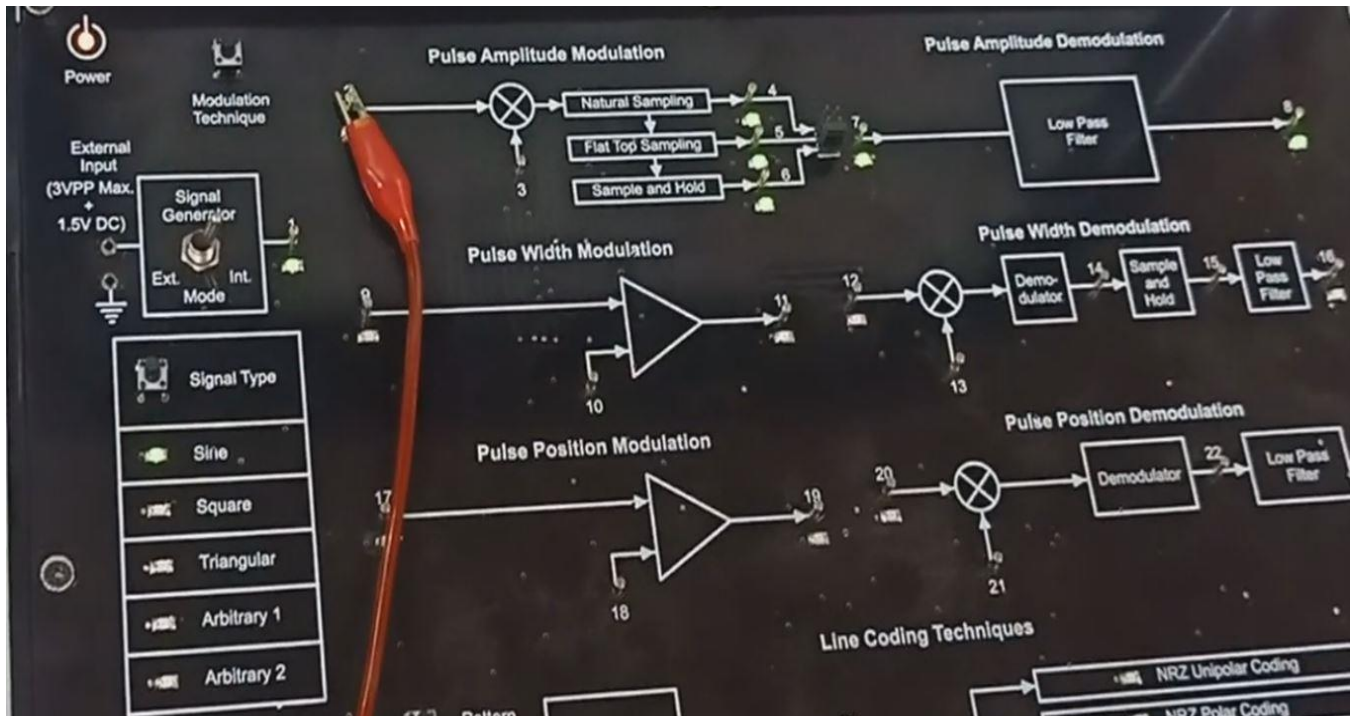
Objective/Aim – Study and analysis of Pulse width (PWM) and Pulse position (PPM) modulation methods.

Setup requirement -

- TechBook Scientech 2801
- Power Supply
- DSO
- Test Probe

Theory - In Pulse Width Modulation (PWM), the width or the time duration of the pulse carrier varies as per the instantaneous amplitude of the message signal. Whereas, in case of pulse position modulation (PPM), the amplitude and the width of the pulses are kept constant, while the position of each pulse, with reference to the position of a reference pulse varies according to the instantaneous sampled value of the message signal.

Block Diagram/ Circuit Diagram -



Observation tables -

Input Signal Frequency	Input Signal Type	ModulationType	Output
500 Hz	Sine	PWM	
1 KHz	Sine	PPM	

Results - In this exercise, we observe that the PWM and PPM signals consist of samples of the message signal. Moreover, we observed the differences between PWM and PPM modulation techniques for different sampling rates and pulse-widths.

Precautions-

1. Switch off the experimental kit during making connections.
2. Adjust the frequency of pulse trains and message signal carefully to get reasonable PWM/PPM waveforms.
3. Use the DSO carefully.