Today advanced communication technologies are growing in a tremendous way. Technologies like wireless communication, mobile communication, satellite communication, data communication, RF ID etc enters in our daily lives. M-ary signaling schemes are preferred over binary signaling schemes for transmitting digital information over band-pass channels when the requirement is to conserve bandwidth at the expense of increased power. In practice, we rarely find a communication channel that has the exact bandwidth required for transmitting the output of an information source by means of binary signaling schemes.

Both the phase and amplitude can simultaneously be varied in Quadrature Amplitude Modulation (QAM). More bits can be send in each symbol, but an unavoidable decrease in the tolerance for noise results. Thus, 16-QAM with many possible values works very well in wired & wireless channels.

40698 Training System is an ideal solution to bridge the gap between the theoretical studies and practical working of 16- QAM. With this student will study the step by step journey of the signals from source to destination.

Features

1. Encoding: 4 bits encoding with Symbol Mapper
2. Modulation: 16-QAM Modulation with I & Q Channel
3. Constellation (Vector / XY) View
4. User selectable step variable clock frequency
5. User Selectable 8 / 16 / 32 / 64 bit Data
6. Digitally Synthesized Sine & Cosine Wave of Maximum 19.2KHz.
7. External Trigger Out

Object
Study, Analysis & Measurement of :
1. Variable Data with respect to variable Clock
2. 4 bits encoding
3. I-Q Channel Gray to Binary Encoder
4. I-Q Channel Symbol Mapper & Constellation Pattern
5. I-Q Channel Modulation
6. 16-QAM Modulation with respect to Symbol Mapper
7. 16-QAM Demodulator
8. I-Q Channel Symbol Demapper
9. I-Q Channel Binary to Gray Decoder
10. 4 bits decoding
11. Complete 16-QAM Transmitter & Receiver System

Technical Specifications
- On board Digitally Synthesized Sine and Cosine wave Generator with Variable Step Frequencies
- On board Clock Generator with Step Variable Frequencies (150Hz, 300Hz, 600Hz, 1.2 KHz, 2.4 KHz, 4.8 KHz and 9.6 KHz and 19.2 KHz).
- On board Data generator with Step Variable data length (8, 16, 32, 64bits)
- Encoding Technique (4 bits encoding with Symbol Mapper, Gray to Binary Encoder)
- Modulation Technique (16QAM Modulation with I & Q Channel)
- Numerical Control Oscillator (on board NCO for demodulator)
- Decoding Techniques (4 bits decoding with Symbol Demapper, Binary to Gray Decoder)
- Power Supply : 110-220 V ±10%, 50 / 60 Hz
- Power Consumption : 2.5 VA approximately
- Weight : .5Kg approximately
- Dimension (mm) : W 360 ´ D 260 ´ H 110
- Operating Conditions : 0-40° C, 80% RH

Note: Specifications are subject to change.