Communication Systems Lab

Lab Report (180030037)

Experiment 1 : Amplitude Modulation (AM) and Demodulation

Conventional Amplitude Modulation (AM) Technique

Message Signal Parameters
Am = 1 V
Fm = 10 Hz

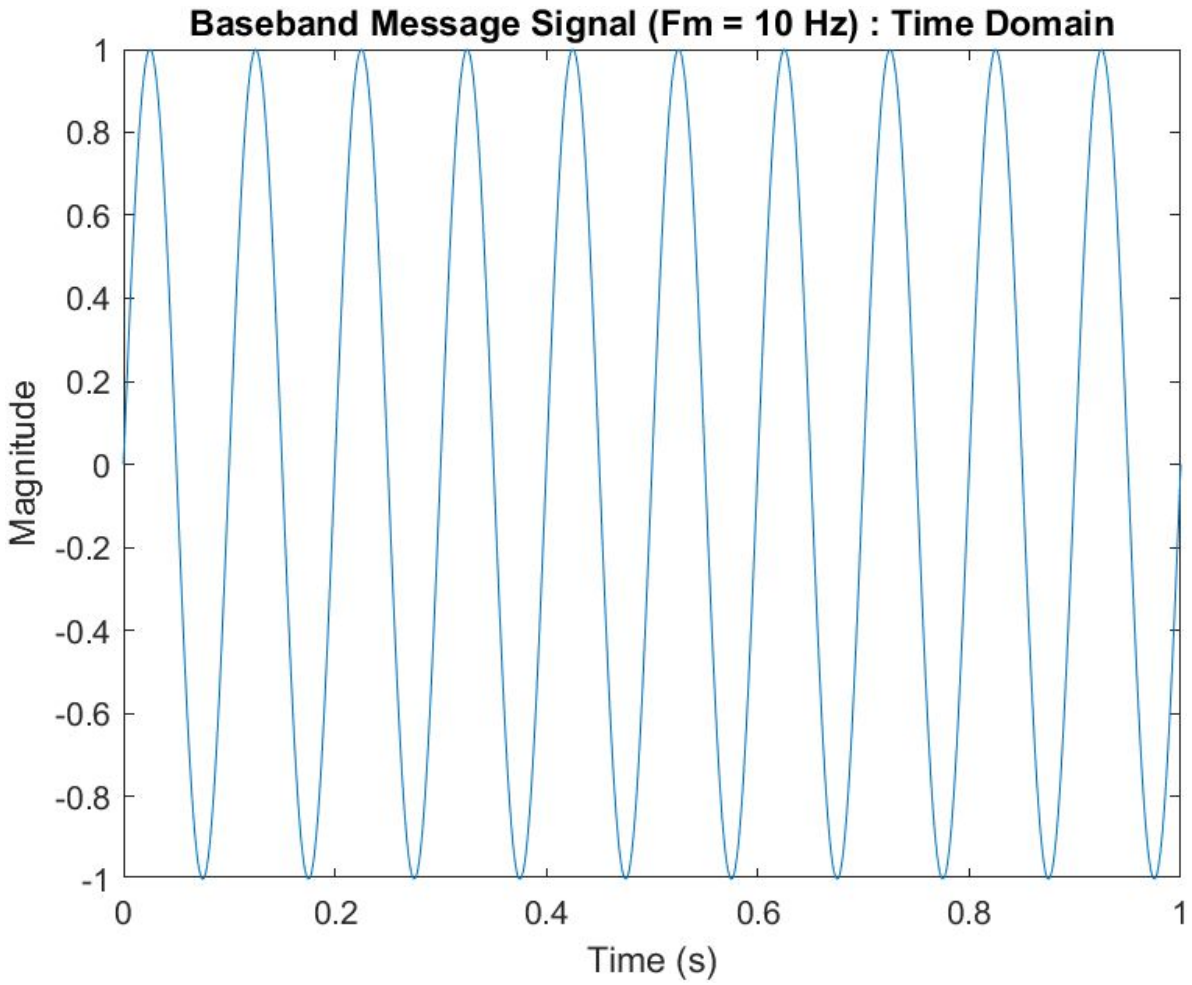
Carrier Signal Parameters
Ac = 3 V
Fc = 100 Hz

Sampling Parameters
Fs = 1000 Hz

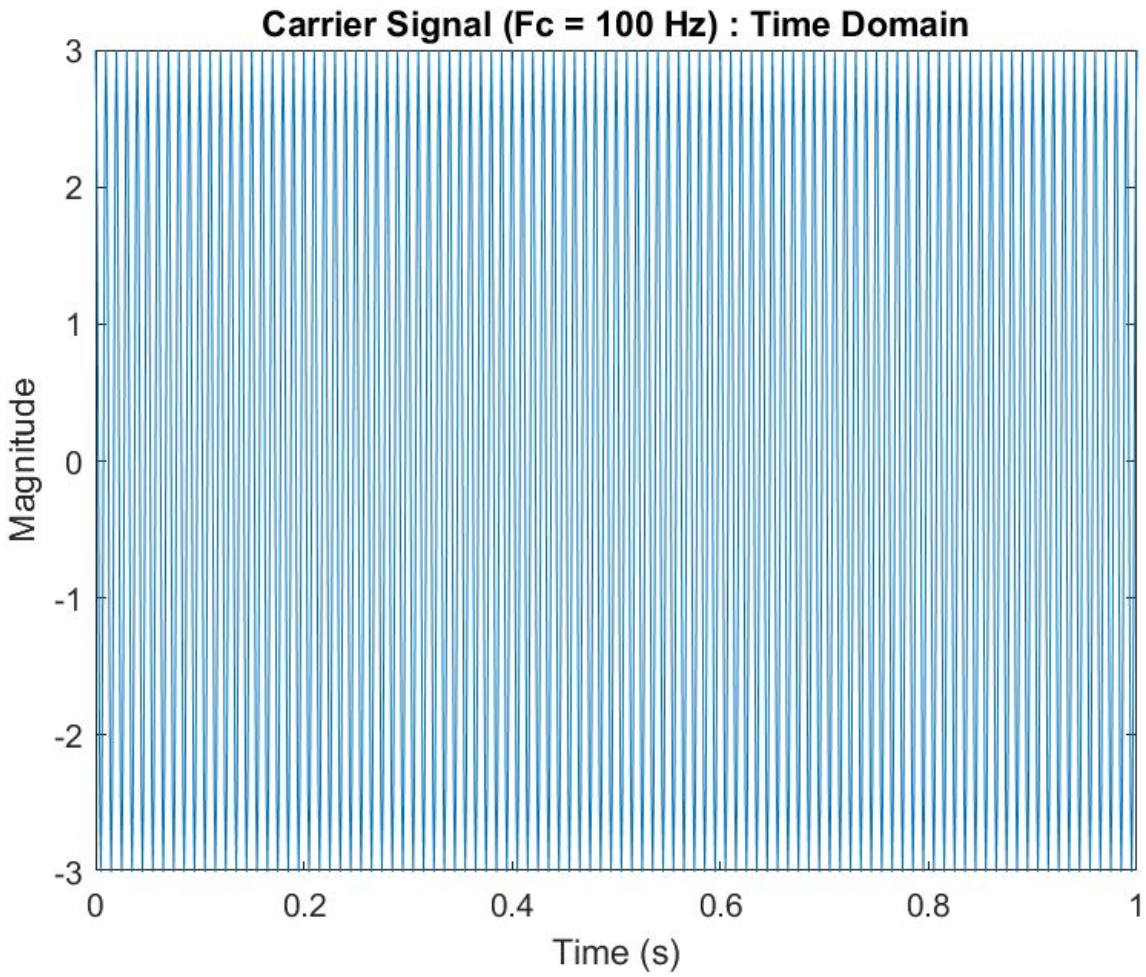
Therefore, Modulation Index (μ) = ⅓ = 0.333

Time Domain Plots

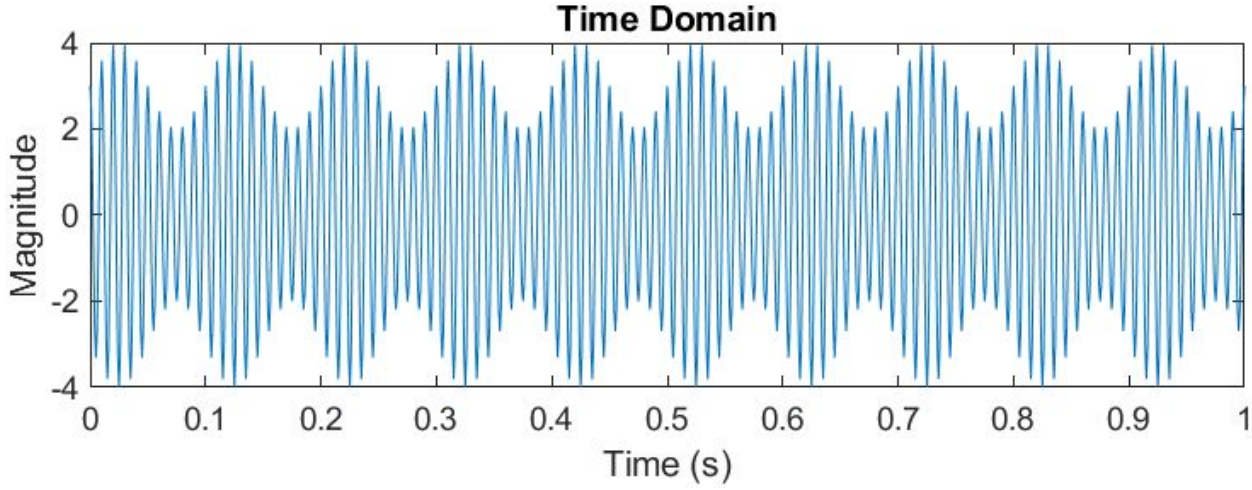
1. Message Signal



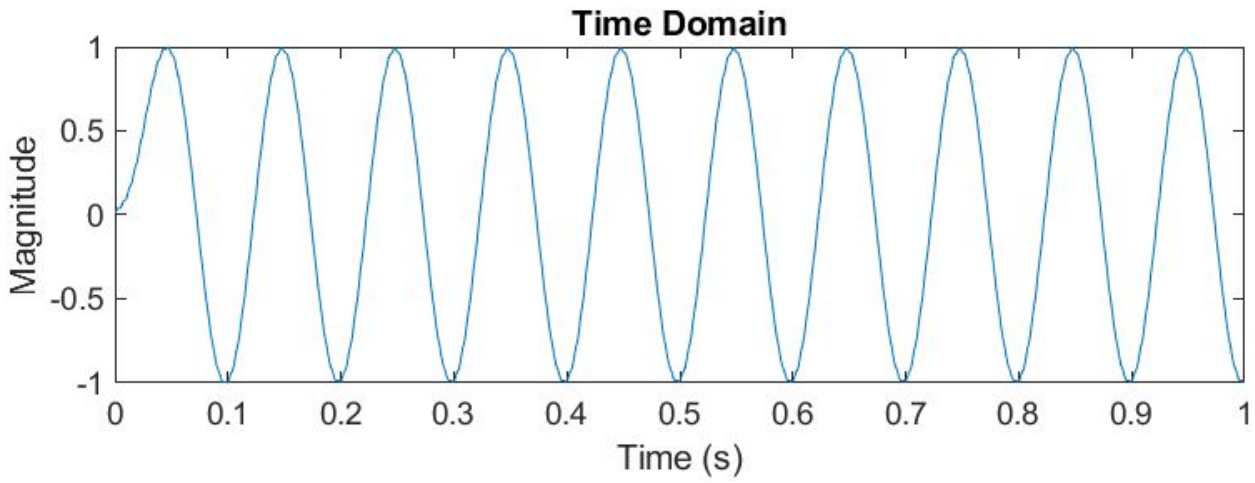
2. Carrier Signal



3. Modulated Signal

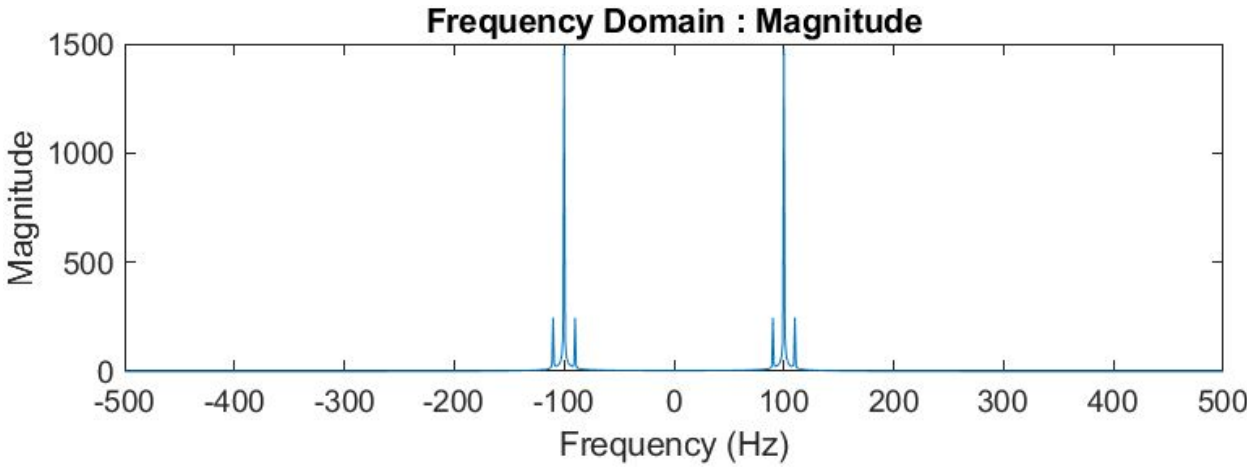


4. Demodulated Signal

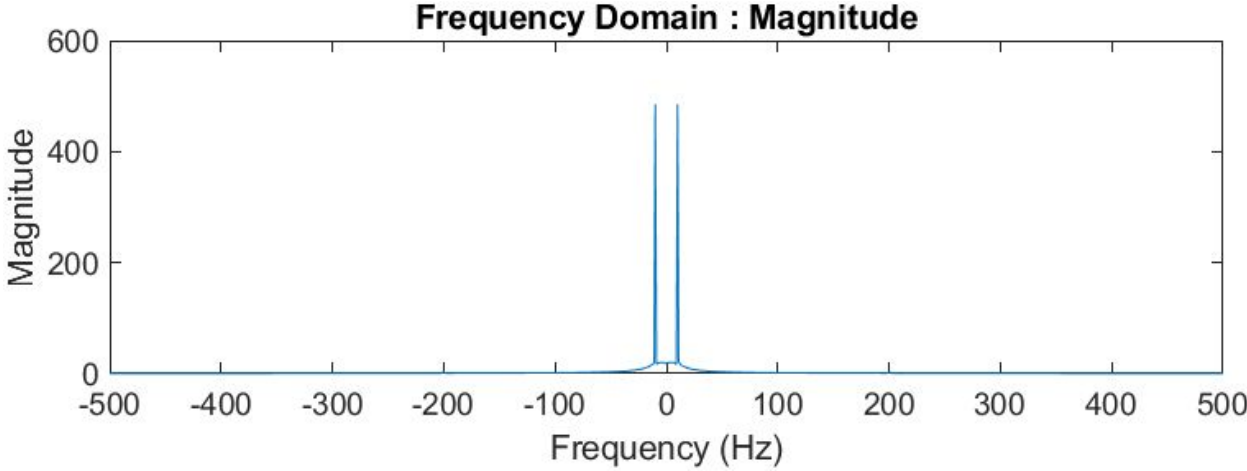


Frequency Domain Plots

1. Modulated Signal



2. Demodulated Signal (Peaks at 10 Hz)



Double Sideband Suppressed Carrier (DSB SC) Amplitude Modulation Technique

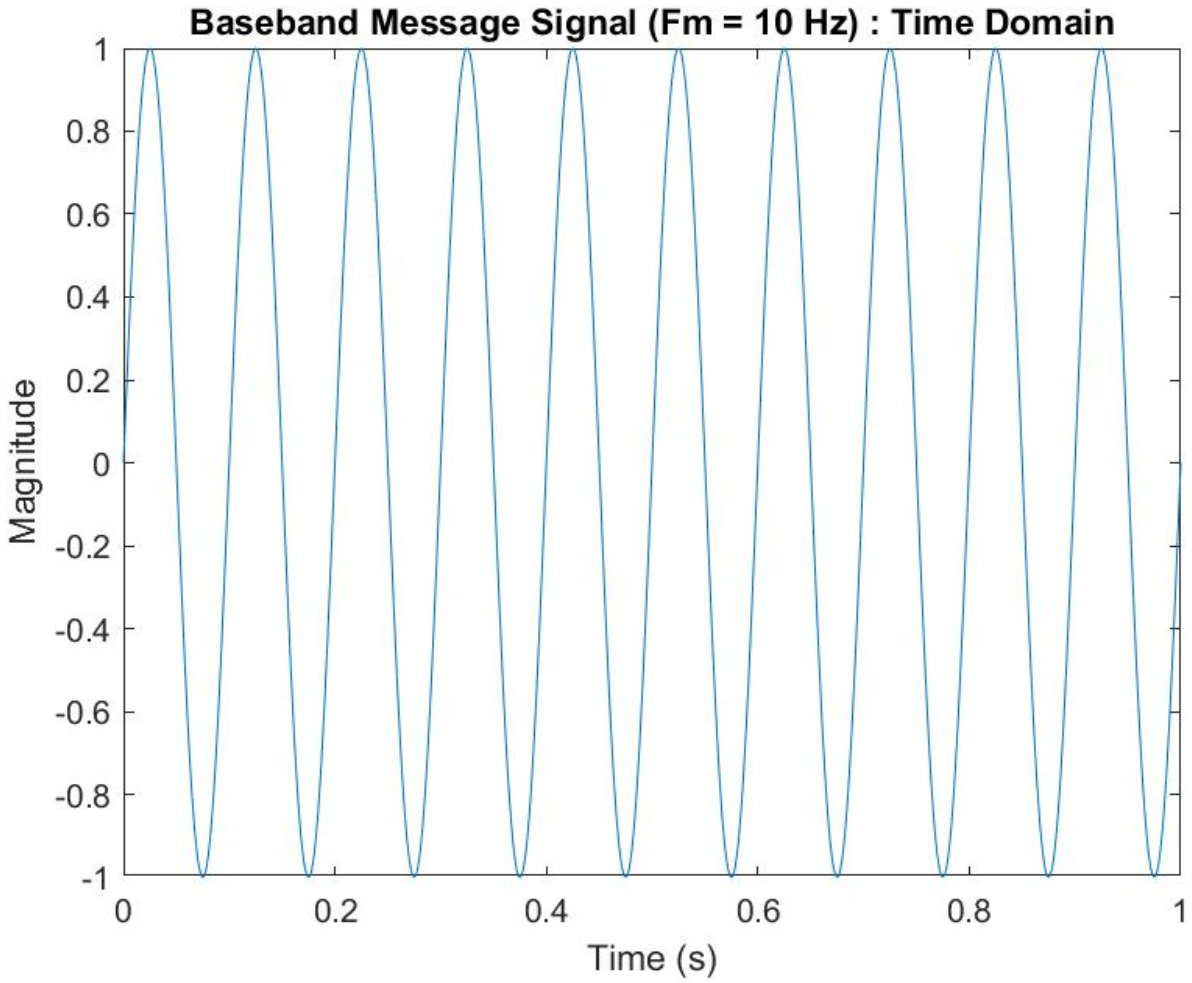
Message Signal Parameters
Am = 1 V
Fm = 10 Hz

Carrier Signal Parameters
Ac = 3 V
Fc = 100 Hz

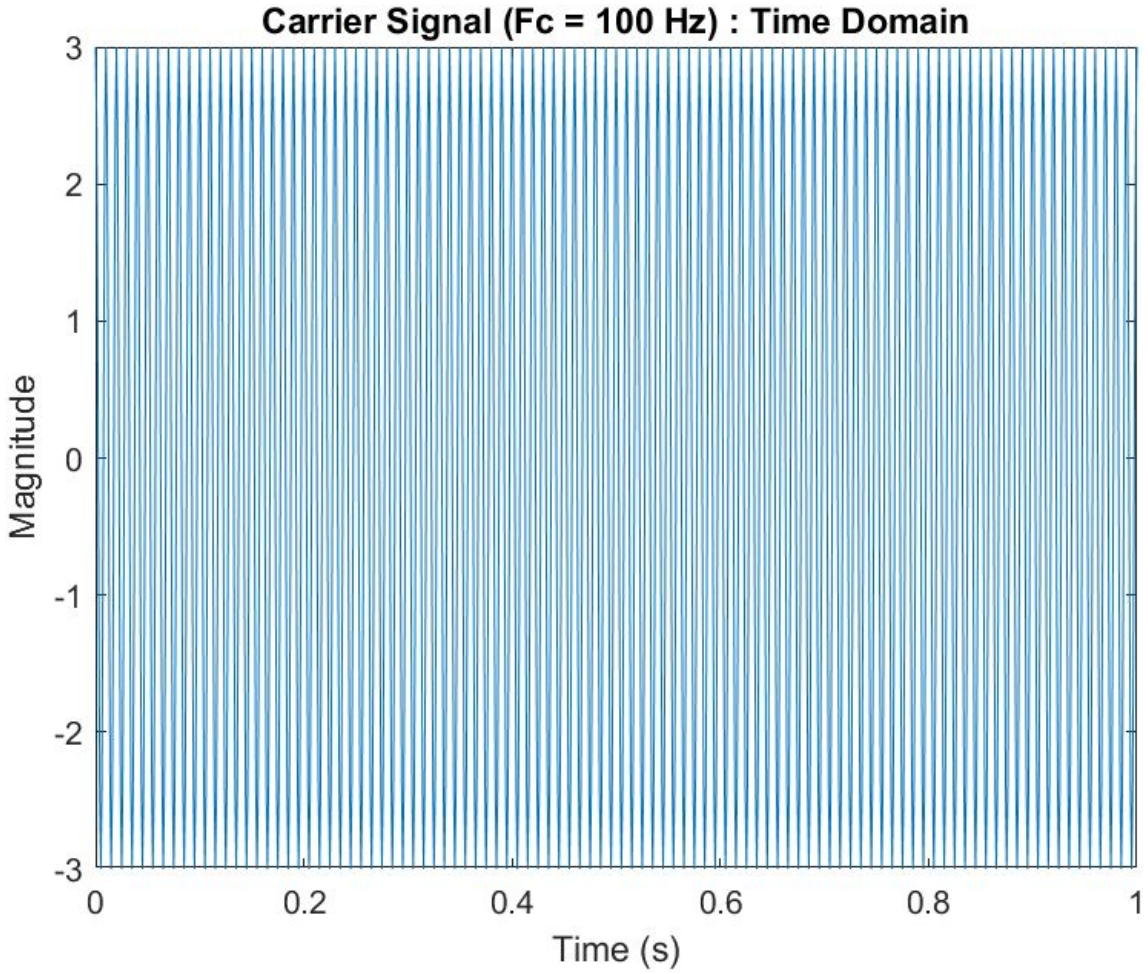
Sampling Parameters
Fs = 1000 Hz

Time Domain Plots

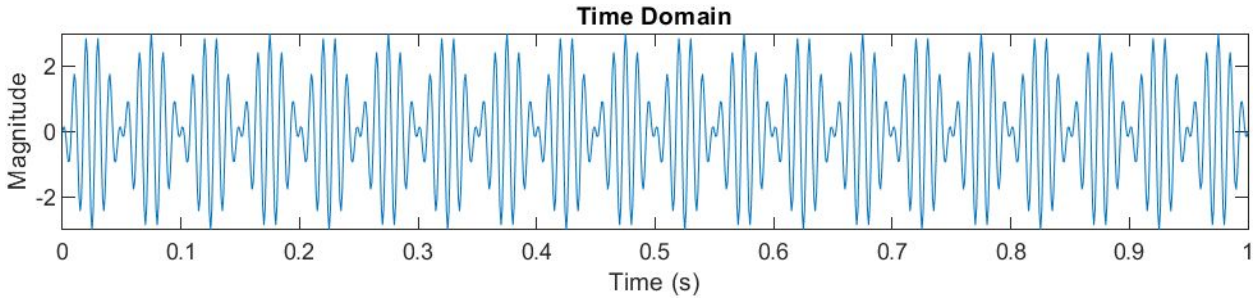
1. Message Signal



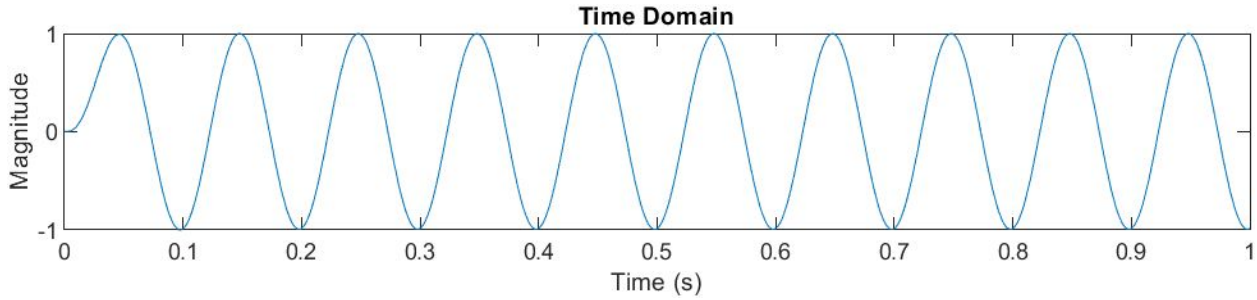
2. Carrier Signal



3. Modulated Signal

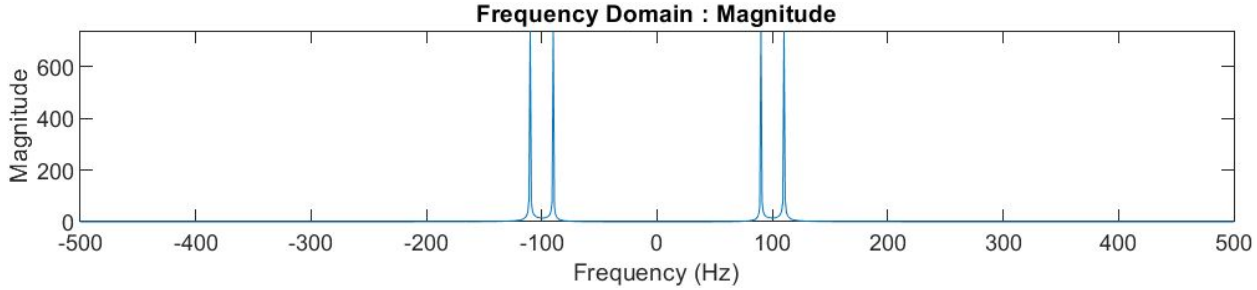


4. Demodulated Signal

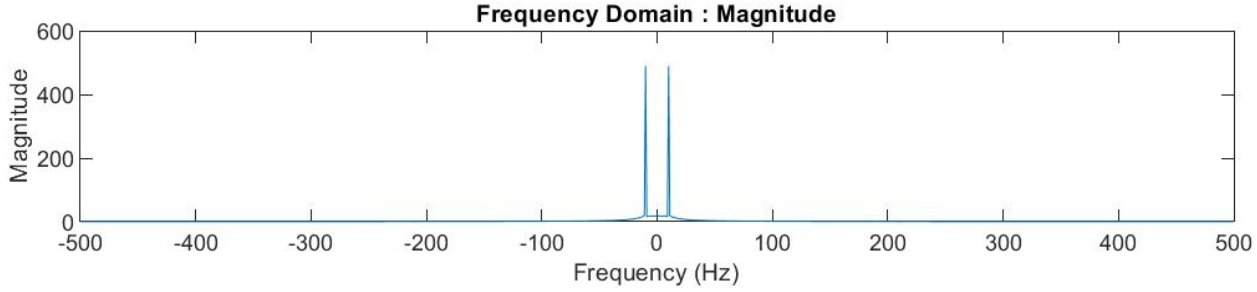


Frequency Domain Plots

1. Modulated Signal



2. Demodulated Signal (Peaks at 10 Hz)



Single Sideband Suppressed Carrier (SSB SC) Amplitude Modulation Technique

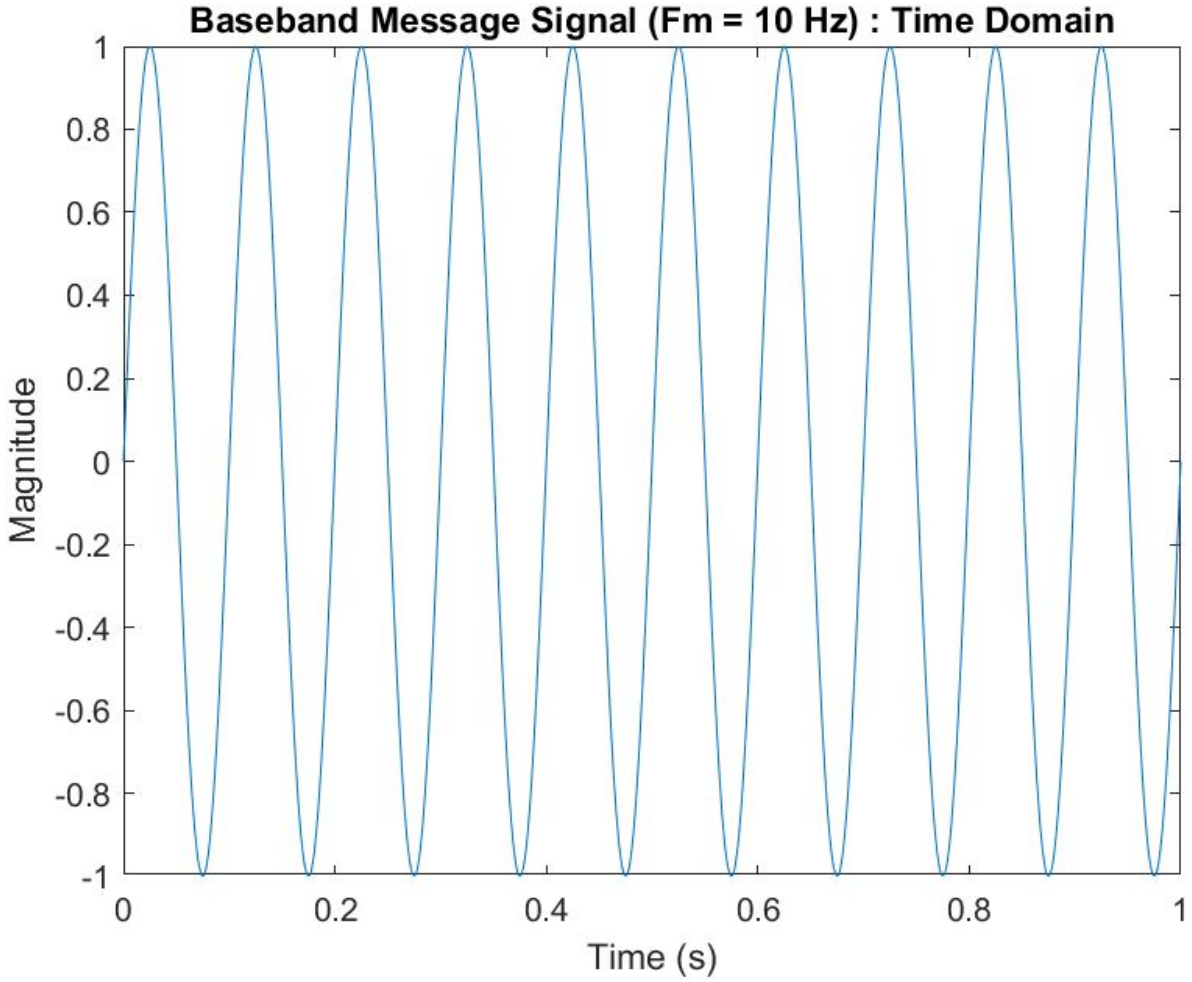
Message Signal Parameters
Am = 1 V
Fm = 10 Hz

Carrier Signal Parameters
Ac = 3 V
Fc = 100 Hz

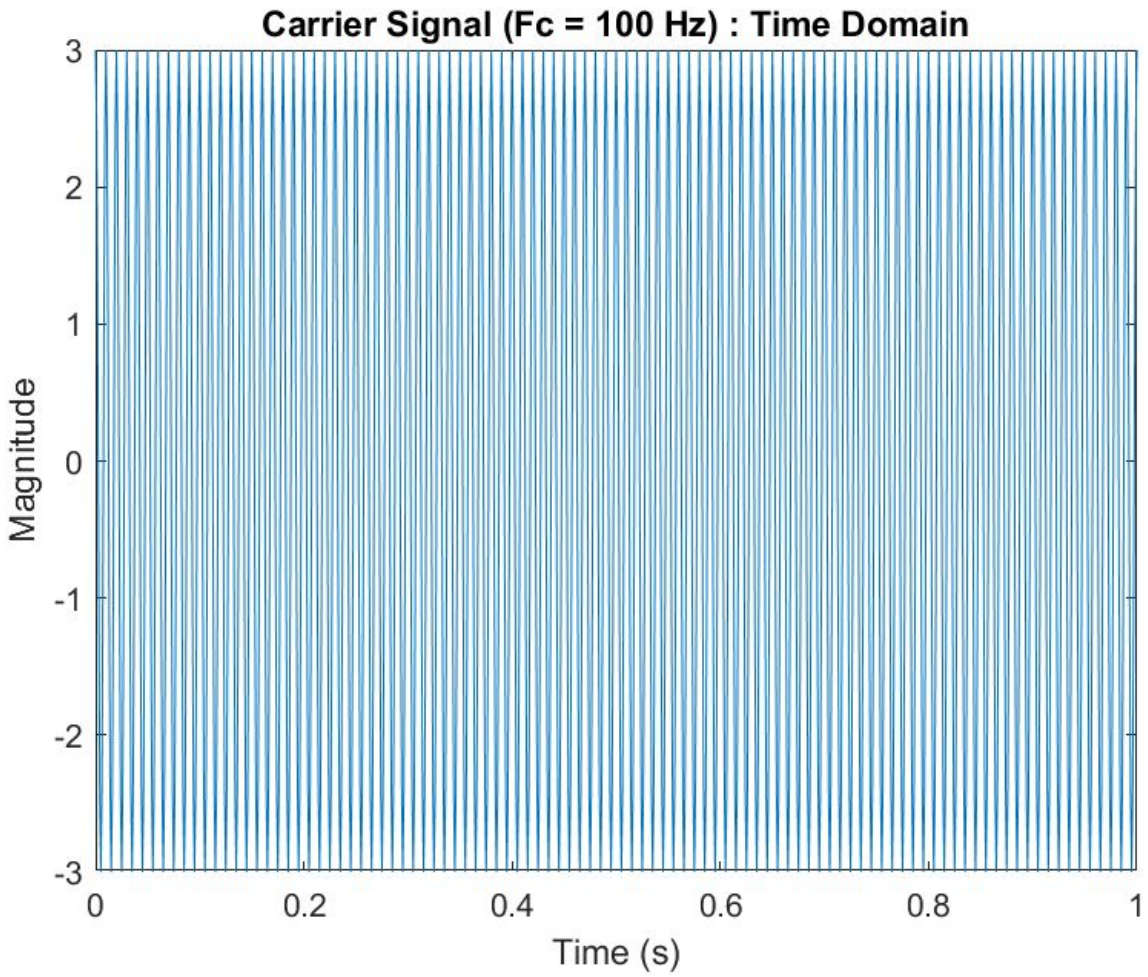
Sampling Parameters
Fs = 1000 Hz

Time Domain Plots

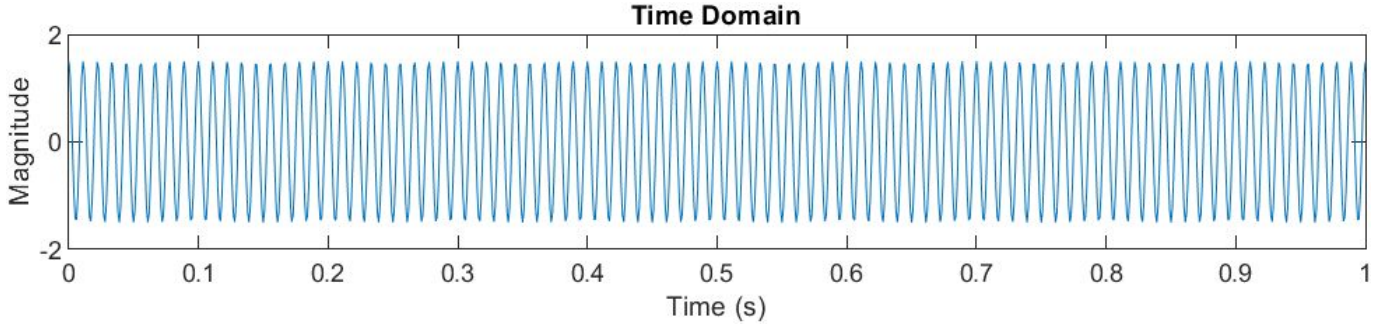
1. Message Signal



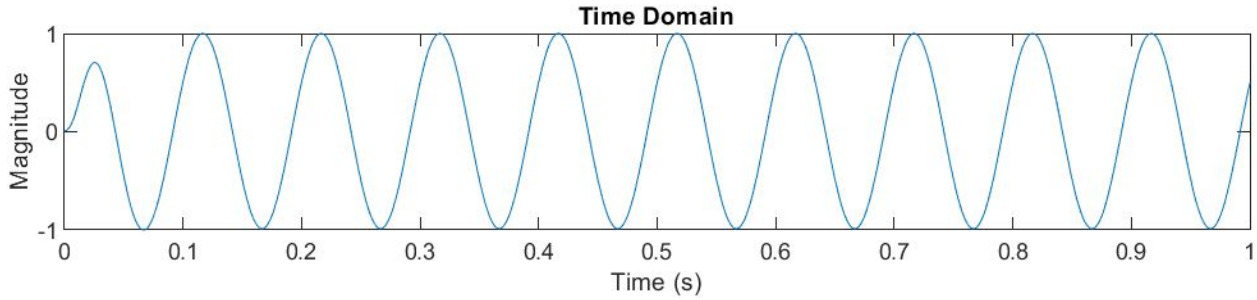
2. Carrier Signal



3. Modulated Signal

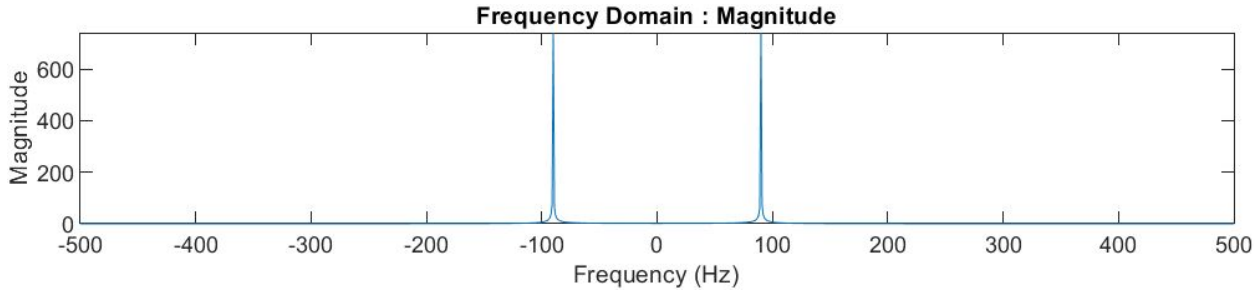


4. Demodulated Signal



Frequency Domain Plots

1. Modulated Signal



2. Demodulated Signal (Peaks at 10 Hz)