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close all; clearvars; clc

Ncyc = 5;
    % Number of sinusoid cycle to be simulated
Fc = 50;
    % Sinusoid frequency [Hz]
A = 3;
    % Sinusoid amplitude [V]
Fs = 2e3;
    % Sample rate [Sa/s]

AdcRes = 8;
    % ADC resolution (for 2nd y-axis conversion)
Nsp = Fs/Fc;
    % Expected number of samples per sinusoidal period (to be checked on 1st
    x-axis)
xSamp = 0:Ncyc*Fs/Fc-1;
xTime = 1/Fs*xSamp;
ySgn = A*sin(2*pi*Fc*xTime);

figure
plot(xSamp,ySgn,'b.-')
xlabel('Sample #');
ylabel('Amplitude [V]')
grid on

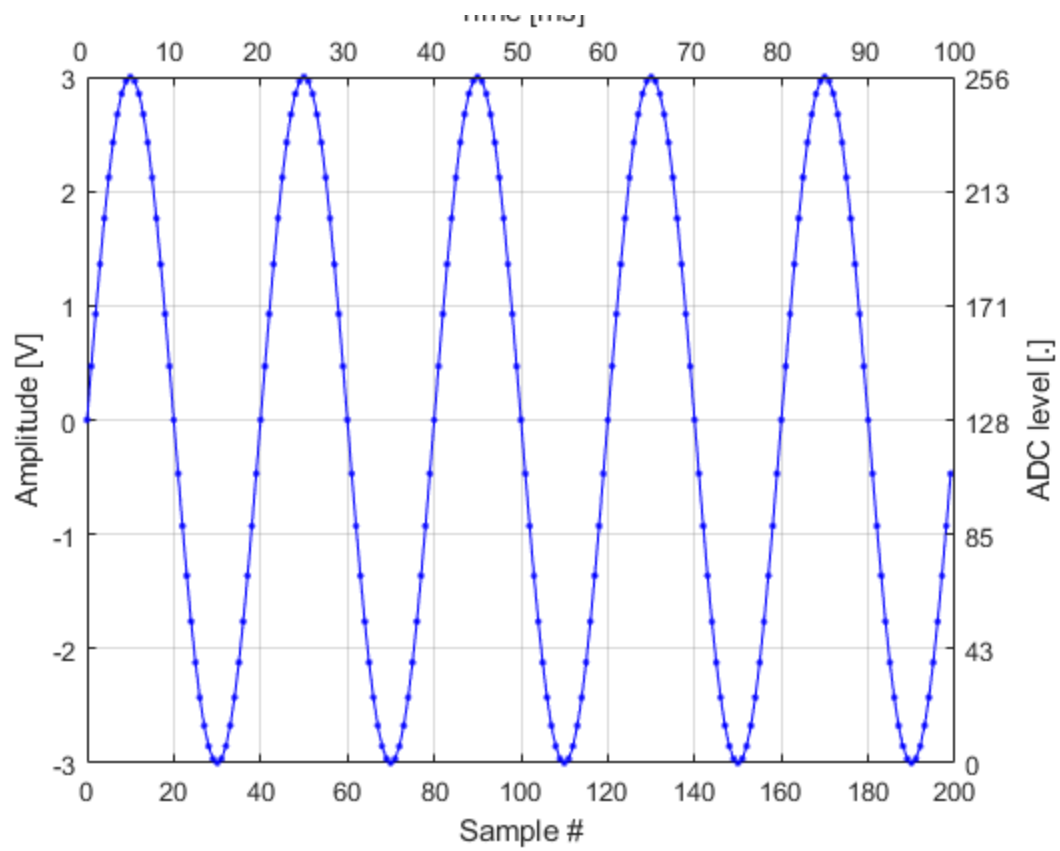
Axis1 = gca;
    % get current 1st (main) axis info
Axis2 = axes('Position',get(Axis1,'Position'),'Color','none');
    % create 2nd axis (blank)
linkaxes([Axis1 Axis2],'xy');
    % link 2nd axis to 1st axis on both X-Y

set(Axis2,'XAxisLocation','top');
    % set 2nd x-axis on the top
set(Axis2,'XLim',get(Axis1,'XLim'));
    % set same xlim as main x-axis
set(Axis2,'XTick',get(Axis1,'XTick'));
    % use same ticks number and position as main x-axis
set(Axis2,'XTickLabel',get(Axis1,'XTick')*1e3/Fs);
    % set 2nd x-axis tick labels (by scaling 1st axis ones)
Axis2.XLabel.String = 'Time [ms]';
    % set 2nd x-axis label

set(Axis2,'YAxisLocation','right');
    % set 2nd y-axis on the right
set(Axis2,'YLim',get(Axis1,'YLim'));
set(Axis2,'YTick',get(Axis1,'YTick'));
set(Axis2,'YTickLabel',round((get(Axis1,'YTick')/(2*A)+0.5)*2^AdcRes));
Axis2.YLabel.String = 'ADC level [.]';

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*Published with MATLAB® R2022a*