School of Electrical and Computer Engineering
University of Newcastle, Australia

ELEC3251
Assignment 2

Analysis of Switching Harmonics, Grid Connected Inverters and Space Vector Control System Design

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1 Switching Harmonics

1.1 Method

To determine the correct switching output, a test was performed at the H-bridge output to confirm that both switching strategies can be achieved. This test involved setting a constant sinusoid input at the H-bridge controller.

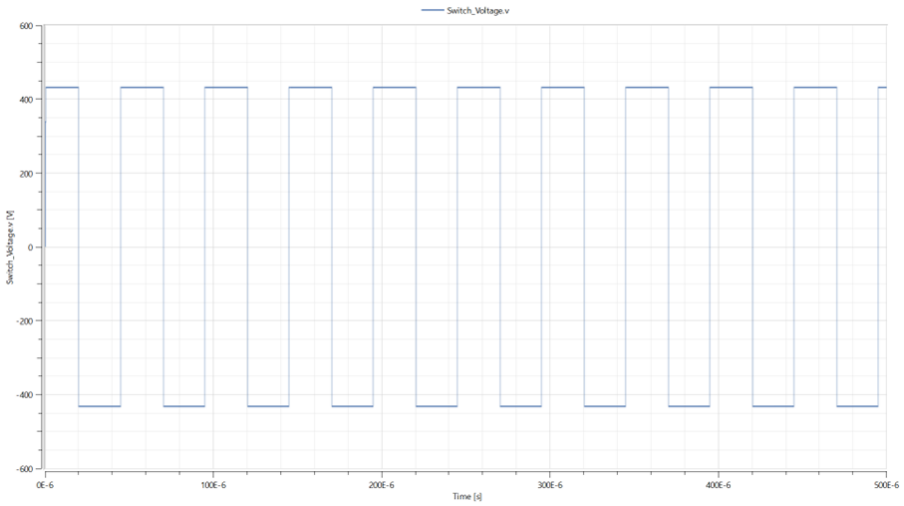

Figure 1: Bipolar Switching Test

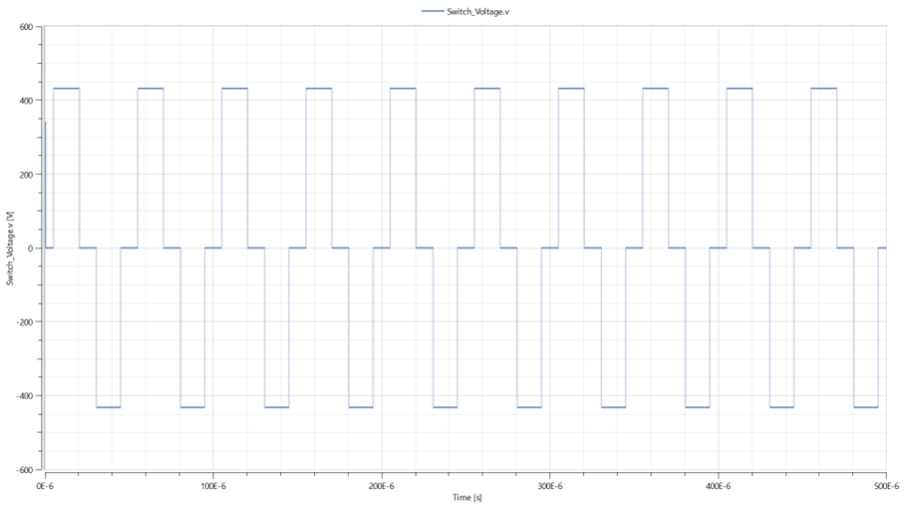

Figure 2: Unipolar Switching Test

The solar cell was swapped to DC source. The grid was swapped to DC source. The switching

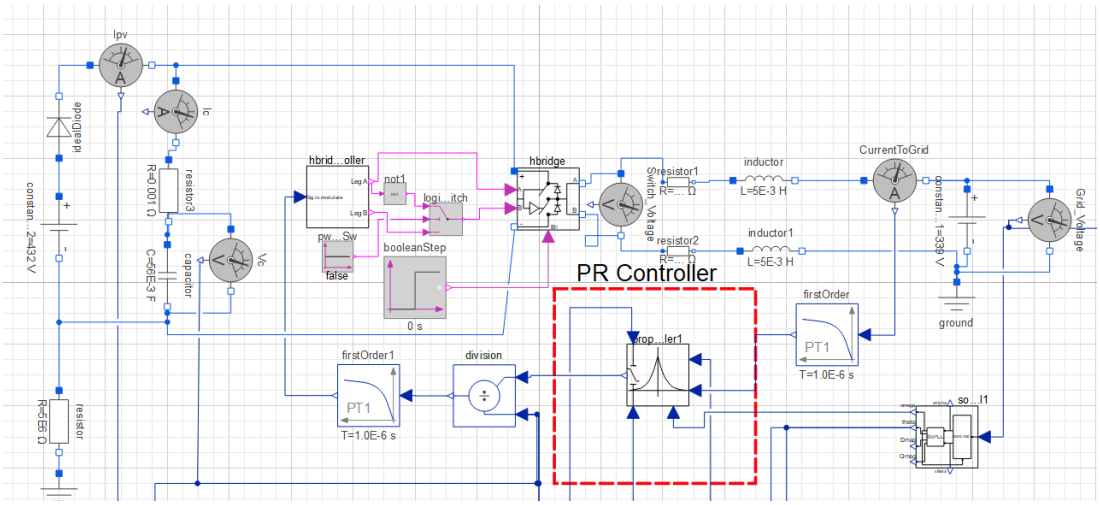

Figure 3: Set-Up for harmonic comparison

frequency of the H-bridge controller was set to $20\,kHz$. While changing this was not nessessary, it made reading and understanding simulation results easier.

1.2 Results

2 Grid Connected Inverters

3 Space Vector Control System Design

References