Matlab 3 phase inverter

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This model demonstrates a DC-AC converter. 3 leg Mosfet operated inverter is constructed . Can be used to demonstrate the relationship of input DC, output voltage, modulation index, filter selection and switching frequency.3rd harmonic injection features

A single phase inverter is the type of inverter in which only one DC source is used, and the output thus formed is a single phase AC waveform. In the circuit, a bridge-like circuit comprised of IGBT transistors is used, which converts DC to AC.

Alternatively, a three phase inverter uses two input DC sources and 6 IGBT transistors to convert DC voltage into AC voltage, and the output of such a circuit will be a three phase AC waveform with a phase difference of 120. In the explanation below, we will design a three phase inverter in Simulink.

Open MATLAB and then open Simulink using the Simulink icon on MATLAB, as we have been doing in previous tutorials. Create a new blank model and save it in the first hand so we can access it in the future. Now, click on the library browser icon on Simulink"s recently created model. In the library browser, select the section named “Simscape”, as shown in the figure below.

In an inverter, as we know, thyristors are used in place of diodes (as in rectifiers). From here, we will select the thyristor block with the name IGBT / Diode as we can see in the figure below.

Thus, to access the block properties, double-click on the thyristor block, and in the block parameters dialog box, uncheck the point of showing the measurable port. Refer to the figure below.

In the library browser, go back to the fundamental block section as we have used before and select the block named “powergui” and add it to the model as shown in the figure below.

This block contains the definition of all the power blocks used in Simulink and acts like a startup file for the model. Now in the fundamental blocks section, go to the sources section, as shown in the figure below.

We need a different pulse generator for each of the thyristors; hence, place six different pulse generators for every thyristor. Now for the output side, select the measurement block in the fundamental blocks section, and in this section, select the block named voltage measurement, as shown in the figure below. As we are working with a 3-phase inverter, we need to place three such measuring devices.

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Web: https://www.hollanddutchtours.nl/contact-us/
Email: energystorage2000@gmail.com
WhatsApp: 8613816583346