Abstract

Multi-level inverter technology has emerged recently as a very important alternative in the area of high-power medium-voltage energy control. In this paper, the most important topologies like diode-clamped inverter (neutral-point clamped), capacitor-clamped (flying capacitor), and cascaded multi cell with separate dc sources. In this paper, we proposed a new multi-level inverter topology based on a H-Bridge with number of switches connected in series with dc link.
Hybrid Model of Multilevel Inverter with Selected Harmonic Elimination

as per the number of levels. The output voltage of the proposed topology is quite closer to quasi sinusoidal waveform compared with a typical single phase inverter. The proposed multilevel inverter is applicable to power conditioning system for renewable energy sources, and it also be used as a building block of cascaded multilevel inverter for high voltage. In case of conventional H-bridge type or NPC type multilevel inverter, 12 controllable switches are used to obtain a 7 level output voltage. But the proposed multilevel inverter requires only 7 switches. The efficiency can be improved with the reduction of the switching loss. The multilevel inverter is composed of an H-Bridge inverter and the active switches are connected in series with the DC link as per the requirement. For the 7-level output, seven numbers of switches and two numbers of diode are used. Three different DC source are required for the multi-level inverter. For a low or medium power application, we can use MOSFET or IGBT as power semiconductor switches.

References

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Index Terms

Computer Science

Power Systems

Keywords

Multi-level Inverter; Total Harmonic Distortion; cascade Multi-level Inverter.