

Intisari

Catu daya terisolasi merupakan alat yang sangat penting dalam operasi inverter. Terdapat masalah dalam mengaktifkan saklar sisi atas pada inverter dengan topologi bridge karena masalah floating ground. Catu daya terisolasi dapat menjadi solusi masalah tersebut dengan memberikan floating supply ke rangkaian *gate drive*. Dalam tulisan ini akan dibahas perancangan dan implementasi catu daya terisolasi untuk *gate drive* IGBT. Spesifikasi catu daya terisolasi memiliki tegangan keluaran 16 volt dan -8 volt untuk memaksimalkan kinerja inverter. Daya keluaran catu daya disesuaikan dengan kebutuhan daya *gate drive* dan kelas IGBT. Untuk mengoperasikan inverter tiga fase, dibutuhkan enam rangkaian *gate drive*. Catu daya yang dibuat harus dapat mencatu setiap *gate drive* dengan menggunakan satu rangkaian pengendali. Berdasarkan beberapa pertimbangan, topologi push-pull merupakan pilihan terbaik untuk implementasi catu daya terisolasi. Kemudian kinerja catu daya akan diuji dan dianalisis. Hasilnya converter *push-pull* dapat diimplementasikan pada catu daya terisolasi dengan tegangan keluaran 16 volt dan -8 volt, serta dapat mencatu enam *gate drive* IGBT.

Kata Kunci: Catu Daya Terisolasi, *Gate Drive*, IGBT, Inverter Tiga Fase, Konverter *Push-Pull*

Abstract

Isolated Power supply is a very important device in the operation of inverter. There is a problem to activate the upper side switch in the bridge topology inverter because of floating ground issue. Isolated power supply solves gate driving problem at the upper side switch by giving floating supply to the gate drive circuit. Design and implementation of an isolated power supply for IGBT gate drive will be explained. The power supply output specification voltages are 16 volt and -8 volt to maximize inverter performance. The power rating of this isolated power supply is adjusted to the needs of gate drive power and IGBT class. There are six gate drive circuits to operate a three-phase inverter. The isolated power supply must be able to power six gate drives circuit using a single controller. From many consideration, push-pull topology is the best choice for the implementation of the isolated power supply. And then the performance of the isolated power supply will be tested and analyzed. The result is push-pull converter can be implemented in isolated power supply. The isolated power supply output voltages are 16 volt and -8 volt and capable of power up to six gate drive IGBT.

Keyword: *Isolated Power Supply, Gate Drive, IGBT, Three Phase Inverter, Push-Pull Converter*