

Model vektor tegangan asimetri untuk modulasi vektor ruang diterapkan pada tapis aktif sistem tiga fasa empat lengan = Novel asymmetrical voltage vector for space vector modulation implemented into three phase four leg system active filter

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Abstrak

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Pengaturan arus kompensasi pada tapis aktif sistem tiga fasa empat lengan dengan menggunakan teknik modulasi vektor ruang dilakukan dengan mengatur vektor tegangan dan vektor tegangan referensi. Dalam modulasi vektor ruang maka model vektor tegangan berbentuk silinder tegak telah dikembangkan oleh Zhang dan beberapa peneliti lain. Peninjauan ulang model matrik pemetaan Akagi teori pq-pqr dengan metode rotasi sudut Euler menghasilkan vektor ruang tiga dimensi berbentuk silinder miring sehingga analisis parameter modulasi mengikuti analisis bentuk asimetri. Model vektor tegangan asimetri pada modulasi vektor ruang bersifat unik dalam menentukan vektor tegangan referensi, waktu pensaklaran dan duty cycle. Penentuan parameter modulasi seperti vektor tegangan referensi, duty cycle dan waktu pensaklaran dari model vektor tegangan asimetri menghasilkan harga yang sedikit berbeda dengan model silinder tegak. Modulator membangkitkan sinyal kendali pensaklaran tapis aktif sistem tiga fasa empat lengan bekerja berdasarkan modulasi vektor ruang asimetri dengan kombinasi kendali PI proportional integral dengan luaran berupa arus kompensasi mempunyai amplitudo sama dan polaritas berlawanan dengan arus beban.

ABSTRACT

Current compensation controller on three phase four leg system active using space vector modulation technique is done by setting the voltage vector and the reference voltage vector. In vector space modulation, the upright cylindrically vector voltage model has been developed by Zhang and several other researchers. A review mapping matrix model of Akagi the pq pqr theory with Euler angular rotation method result a three dimensional the skewed cylindrical vector so that the analysis of modulation parameters follows asymmetrical form analysis. The asymmetrical voltage vector model in vector space modulation is unique in determining the reference voltage vector, switching time and duty cycle. Determination of modulation parameters such as reference voltage vectors, duty cycle and switching time of the asymmetrical voltage vector model result a slightly different price with the upright cylindrically model. The modulator generates a switching control signal switching the three phase four leg system active filter on of the asymmetrical space vector modulation with a combination of PI proportional integral control with the output of the current compensation having the same amplitude and the opposite polarity of the load current. The modulator generates a switch modulation signal switching system active three phase four leg based on the asymmetrical voltage vector model with the output of the compensation current has the same amplitude and polarity opposite the load current.