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Pemodelan dan Simulasi Dynamic Voltage Restorer (DVR) untuk Kompensasi Tegangan di Sistem Distribusi = Modelling and Simulation of Dynamic Voltage Restorer (DVR) for Compensate Voltage in Distribution System

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Abstrak

[ABSTRAK
Permasalahan kualitas daya kini menjadi perhatian karena dapat menyebabkan gangguan sehingga menimbulkan kerugian terutama bagi pelanggan industri yang banyak menggunakan perangkat yang sensitif terhadap tegangan. Dynamic Voltage Restorer merupakan sebuah alat yang dirancang untuk dapat mengkompensasi lendutan tegangan yang diakibatkan gangguan dan penambahan beban secara tiba-tiba pada sistem. Lendutan tegangan yang terjadi pada beban sensitif dideteksi oleh DVR kemudian pengendali PI memperbaiki nilai error. Keluaran sistem pengendali kemudian dihubungkan dengan inverter tiga fasa yang terhubung dengan sumber tegangan DC 200 Volt. Keluaran inverter tiga fasa dihubungkan dengan transformator injeksi yang terpasang seri dengan sistem. Dari hasil simulasi lendutan akibat gangguan satu fasa ke tanah, gangguan dua fasa,dan gangguan tiga fasa, serta gangguan dengan penambahan beban membuktikan bahwa rancangan DVR ini dapat digunakan untuk mengkompensasi tegangan dimana DVR dapat memperbaiki level tegangan menjadi level tegangan normal yang bernilai 1 pu dengan kesalahan yang hampir tidak ada.
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ABSTRACT
Power quality problem has now become a concern because it can cause interference then causing losses primarily for industrial customers who are using devices which are sensitive to voltage. Dynamic Voltage Restorer is one of devices designed to be able to compensate for the voltage sag caused by a short circuit fault and the addition of a sudden load on the system. Deflection voltage sensitive loads detected by the DVR and then PI controller fix error value. Output control system is then connected to a three-phase inverter connected to the DC voltage source of 200 volts. Three-phase output inverter is connected to the transformer injection connected series with the system. From the simulation results of the voltage sag caused by, single phase to ground fault, phase to phase fault, and three-phase fault proves that the design of this DVR can be used to compensate for the voltage where the DVR can correct voltage levels into the normal voltage level which is 1 pu with errors are almost non-exist., Power quality problem has now become a concern because it can cause interference then causing losses primarily for industrial customers who are using devices which are sensitive to voltage. Dynamic Voltage Restorer is one of devices designed to be able to compensate for the voltage sag caused by a short circuit fault and the addition of a sudden load on the system. Deflection voltage sensitive loads detected by the DVR and then PI controller fix error value. Output control system is then connected to a three-phase inverter connected to the DC voltage source of 200 volts. Three-phase output inverter is connected to the transformer injection connected series with the system. From the simulation results of the voltage sag caused by, single phase to ground fault, phase to phase fault, and three-phase fault proves that the design of this DVR can be used to compensate for the voltage where the DVR

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