

INTISARI

Universitas Aisyiyah Yogyakarta merupakan kampus yang berada dibawah naungan Muhammadiyah dalam bidang Pendidikan. Pada tahun 2016, tepatnya pada tanggal 10 Maret 2016, STIKES Aisyiyah Yogyakarta berubah bentuk menjadi Universitas Aisyiyah Yogyakarta (UNISA). Tugas akhir ini bertujuan meneliti tentang keandalan sistem distribusi listrik Universitas Aisyiyah Yogyakarta (UNISA) dari segi kualitas panel Low Voltage Main Distribution (LVMD) Gedung A. Untuk menjaga kontinuitas pernyalurannya, suatu sistem kelistrikan yang handal dan sesuai standar mutlak diperlukan. Seiring berjalanya waktu, Universitas Aisyiyah Yogyakarta pun melakukan pengembangan demi mendukung proses belajar mengajar khususnya dalam sektor pembangunan, yang berarti semakin bertambahnya jumlah beban yang di gunakan, baik di sisi pembangkitan listrik maupun di sisi penyaluran beban. Dari hasil pengukuran keandalan panel Low Voltage Main Distribution (LVMD) gedung A UNISA menggunakan Power Quality and Energy Analize menghasilkan nilai harmonisa yang tidak sesuai standar IEEE 519-1992 dengan nilai pengukuran diatas 15%. Berdasarkan penelitian, maka diperoleh beberapa kesimpulan antara lain hasil pengukuran pada panel Low Voltage Main Distribution (LVMD) saat hari kerja dan hari libur memiliki masalah pada THD arus, THD tegangan dan faktor daya. Oleh karena itu pada tugas akhir ini memberikan sebuah solusi perbaikan sistem distribusi listrik UNISA khususnya panel Low Voltage Main Distribution (LVMD) gedung A dengan memasang filter pasif single tuned pada nilai ordo tertinggi dan pemasangan kapasitor bank.

Kata Kunci : Filter Pasif, Faktor Daya, Harmonisa, Kapasitor Bank, Panel LVMD

ABSTRACT

University of Aisyiyah Yogyakarta is a campus under the auspices of Muhammadiyah in the field of Education. In 2016, precisely on March 10, 2016, STIKES Aisyiyah Yogyakarta changed its form to Yogyakarta Aisyiyah University (UNISA). This final project aims to examine the reliability of the electrical distribution system of the University of Aisyiyah Yogyakarta (UNISA) in terms of the quality of the Low Voltage Main Distribution panel (LVMD) Building A. To maintain the continuity of its distribution, an electrical system that is reliable and in accordance with absolute standards is needed. Over time, Yogyakarta's Aisyiyah University also develops to support the teaching and learning process, especially in the development sector, which means increasing numbers of burdens that are used, both in terms of electricity generation and in the distribution. From the results of the measurement of the reliability of the Low Voltage Main Distribution panel (LVMD) building A UNISA using Power Quality and Energy Analyze produces harmonics that are not in accordance with IEEE 519-1992 standards with measurement values above 15%. Based on the research, several conclusions are obtained including the results of measurements on the (LVMD) Low Voltage Main Distribution panel during weekdays and holidays have problems with current THD, voltage THD and power factor. Therefore, in this thesis provides a solution to the improvement of the UNISA power distribution system, especially the Low Voltage Main Distribution panel (LVMD) building A by installing a single tuned passive filter at the highest order value and installing a capacitor bank.

Keywords: Passive Filters, Power Factors, Harmonics, Bank Capacitors, LVMD Panel