

ABSTRAK

Nama : Sudirman
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Program Studi : Teknik Elektro
Judul Skripsi : Studi Kelayakan Penerapan ELCB Pada Instalasi Kelistrikan Di Gedung Laboratorium Teknik Elektro Universitas Siliwangi Kampus Mugarsari

Penelitian ini dilatarbelakangi oleh rendahnya tingkat pengamanan dan penerapan sistem proteksi pada instalasi kelistrikan yang dapat menimbulkan risiko kerusakan yang tinggi terhadap instalasi maka penelitian ini membahas tentang studi kelayakan penerapan ELCB pada instalasi kelistrikan di Gedung Laboratorium Teknik Elektro Universitas Siliwangi Kampus Mugarsari. Tujuan dari penelitian ini adalah menganalisis rancangan sistem proteksi yang terpasang yaitu nilai tahanan grounding dan nilai *time to trip* pada ELCB. Melakukan pengukuran tahanan grounding dengan menggunakan Digital Earth Tester yang diperoleh pada pengukuran grounding adalah 5.67 Ohm, jika dilihat dari hasil pengukuran tersebut tidak memenuhi standarisasi PUIL yaitu >5 Ohm. Pengukuran ELCB dengan menggunakan ELCB Tester nilai rata-rata *Time to trip* ELCB pada ruangan Laboratorium 1 Fasa R = 20.8 ms, Fasa S = 21.2 ms, dan Fasa T= 12ms Pada Laboratorium 2 Fasa R= 99.7ms, fasa S= 36.5ms, fasa T= 12ms. Pada laboratorium 3 Fasa R=12ms, fasa S= 22ms, Fasa T= 22ms. Pada laboratorium 4 fasa R=22ms, fasa S= 20.3ms, fasa T= 11.7ms. Pada laboratorium 5 fasa R= 22ms, fasa S= 22.3ms, fasa T= 12ms. Jika dilihat dari nilai yang didapat pada saat pengukuran maka untuk Laboratorium 1,2,3,4 dan 5 memenuhi standar PUIL yaitu 0,4 detik (400 ms).

Kata Kunci : ELCB, Grounding, Proteksi, PUIL

ABSTRACT

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Title : *Feasibility Study of ELCB Application in Electrical Installation in the Electrical Engineering Laboratory Building of Siliwangi University Mugarsari Campus*

This research is motivated by the low level of security and the application of protection systems in electrical installations that can pose a high risk of damage to the installation, so this research discusses the feasibility study of the application of ELCBs in electrical installations in the Electrical Engineering Laboratory Building of Siliwangi University Mugarsari Campus. The purpose of this research is to analyze the design of the installed protection system, namely the grounding resistance value and the time to trip value of the ELCB. Measuring the grounding resistance using a Digital Earth Tester obtained in the grounding measurement is 5.67 Ohm, when viewed from the measurement results it does not meet PUIL standardization which is > 5 Ohm. ELCB measurements using ELCB Tester average value of Time to trip ELCB in the room Laboratory 1 Phase R = 20.8 ms, Phase S = 21.2 ms, and Phase T = 12ms In Laboratory 2 Phase R = 99.7ms, phase S = 36.5ms, phase T = 12ms. In laboratory 3 phase R = 12ms, phase S = 22ms, phase T = 22ms. In laboratory 4 phase R = 22ms, phase S = 20.3ms, phase T = 11.7ms. In laboratory 5 phase R = 22ms, phase S = 22.3ms, phase T = 12ms. When viewed from the value obtained during measurement, Laboratories 1, 2, 3, 4 and 5 meet the PUIL standard of 0.4 seconds (400 ms).

Keywords: ELCB, Grounding, Protection, PUIL