ANALYSIS OF THE TEMPERATURE MONITORING SYSTEM FOR THE TURBINE LUBRICATED BEARING OF UNIT 2 USING A HAIWELL PLC AT THE KOTO PANJANG HYDROELECTRIC POWER PLANT

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ABSTRACT

This study aims to analyze the bearing temperature monitoring system for Turbine Unit 2 at the Koto Panjang Hydropower Plant, utilizing a Haiwell PLC integrated with PT100 RTD sensors and a SCADA system. A descriptive-analytical method was employed, involving temperature measurements, field data collection, and analysis of sensor readings processed by the PLC. Temperature data is processed by the Haiwell PLC and displayed in real-time on the SCADA system to facilitate bearing condition monitoring. The results indicate that bearing temperatures ranged from 26.9°C to 60.4°C during the observation period. Based on the maximum recorded value, an alarm limit of 65°C and a trip limit of 70°C were established as protective measures against overheating. The designed system is capable of continuous temperature monitoring, real-time data display, and providing early warnings when temperatures approach the specified limits. Consequently, the implementation of the Haiwell PLC in the temperature monitoring system enhances monitoring effectiveness and supports the operational reliability of Turbine Unit 2 at the Koto Panjang Hydropower Plant.

Keywords: *Temperature Monitoring, Turbine Bearing, PT-100, Haiwell PLC, SCADA, Koto Panjang Hydroelectric Power Plant.*