# ABSTRAK

Muhammad Akbar Asmadi
Analisis dan Pemasangan Temperatur Transmitter pada Coal Feeder di Central Control Room PT PLN Indonesia Power UBP Barru
Dibimbing oleh Hasna Satya Dini ST. MT

Monitoring temperatur pada coal feeder merupakan salah satu metode penting dalam menjaga keandalan dan keselamatan operasi pembangkit listrik, karena kenaikan suhu pada bearing housing dapat menjadi indikasi awal gangguan mekanis. Penelitian ini bertujuan untuk menentukan spesifikasi temperature transmitter yang sesuai, merancang serta mengintegrasikan sistem monitoring berbasis PLC dan SCADA, serta mengevaluasi kesesuaian pembacaan temperatur antara pengukuran lapangan dan sistem monitoring. Metode yang digunakan meliputi observasi, pengukuran temperatur menggunakan thermogun sebagai referensi, perancangan sistem temperature transmitter berbasis sensor RTD PT100 dengan output 4–20 mA, serta analisis error dan kestabilan sistem selama tujuh hari pengamatan. Hasil penelitian menunjukkan bahwa temperatur inlet berada pada kisaran 40,71°C hingga 42,58°C dan temperatur outlet 42,10°C hingga 44,05°C dengan selisih rata-rata 1,71°C, yang menunjukkan kondisi operasi stabil. Arus keluaran transmitter berada pada kisaran 6,52 mA hingga 6,95 mA, menandakan linearitas sistem. Nilai error antara temperatur lapangan dan SCADA sebesar 0,17% serta fluktuasi temperatur harian yang sangat kecil menunjukkan akurasi dan kestabilan tinggi. Selain itu, kinerja coal feeder dengan error rata-rata 0,024% berpengaruh terhadap kestabilan distribusi temperatur. Dengan demikian, sistem monitoring yang dirancang mampu memberikan data real-time, mendukung predictive maintenance, serta meningkatkan keandalan dan keselamatan operasi coal feeder.

Kata Kunci : temperature transmitter, RTD PT100, coal feeder, PLC, SCADA, monitoring temperatur.

# *ABSTRACT*

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*Analysis and Installation of Temperature Transmitters on Coal Feeders in the Central Control Room of PT PLN Indonesia Power, Barru Power Plant*
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*Temperature monitoring of coal feeders is an important method to maintain the reliability and safety of power plant operations, since an increase in bearing housing temperature can indicate early mechanical failures. This study aims to determine the appropriate temperature transmitter specifications, design and integrate a monitoring system based on PLC and SCADA, and evaluate the conformity between field temperature measurements and the monitoring system. The research method includes field observation, temperature measurement using a thermogun as a reference, system design using an RTD PT100 sensor with 4–20 mA output, and analysis of measurement error and system stability over seven days of observation. The results show that the inlet temperature ranges from 40.71°C to 42.58°C and the outlet temperature ranges from 42.10°C to 44.05°C, with an average temperature difference of 1.71°C, indicating stable operating conditions. The transmitter output current ranges from 6.52 mA to 6.95 mA, demonstrating good linearity. The average error between field measurements and SCADA is 0.17%, and the daily temperature fluctuation is very small, indicating high accuracy and stability. In addition, the coal feeder performance with an average error of 0.024% contributes to maintaining stable temperature distribution. Therefore, the proposed monitoring system is capable of providing real-time data, supporting predictive maintenance, and improving the reliability and safety of coal feeder operations.*

*Keywords: Temperature transmitter, RTD PT100, coal feeder, PLC, SCADA, temperature monitoring..*