

INTISARI

PENGEMBANGAN SISTEM *SUPERVISORY CONTROL AND DATA ACQUISITION* UNTUK MONITORING DAN PENGENDALIAN PROSES EVAPORATOR BERBASIS *PROGRAMMABLE LOGIC CONTROLLER*

Oleh

Labib Falah 'Alauddin

20/462109/PA/20081

Penggunaan Sistem SCADA dalam industri sangat penting untuk dapat bersaing di pasar global yang kompetitif. Sistem SCADA ini diharapkan dapat mengurangi keterlibatan manusia dalam proses evaporator sehingga produk yang didapatkan dapat terjaga kualitasnya. Pengembangan *Supervisory Control and Data Acquisition* (SCADA) dimulai dengan kalibrasi sensor suhu TM131 menggunakan kalibrator *dry block omega cl1500* berdasarkan panduan kalibrasi dari Badan Standarisasi Nasional. Hasil dari Kalibrasi menunjukan nilai koreksi rata rata untuk ketiga sensor sebesar 0,55 dan ketidakpastian 0,95 yang masih memenuhi nilai toleransi dari perusahaan. Kemudian dilakukan perangkaian sensor suhu ke lapangan sesuai dengan titik titik berbeda tergantung sesuai kebutuhan proses evaporasi. Penelitian dilanjutkan dengan perancangan SCADA dengan komponen utama *Programmable Logic Controller* (PLC) CompactLogic 5380 sebagai kontroller utama dan komputer sebagai tampilan antarmuka. Hasil dari perancangan SCADA ini berupa tampilan antarmuka proses evaporator untuk melakukan monitoring dan kontrol, tampilan dan program *automation* proses evaporator, dan data trend untuk menyimpan dan menganalisa parameter lapangan.

Kata Kunci: Evaporasi, Kalibrasi, *Programmable Logic Controller*, *Supervisory Control and Data Acquisition*

ABSTRACT

DEVELOPMENT OF SUPERVISORY CONTROL AND DATA ACQUISITION SYSTEM FOR MONITORING AND CONTROL OF EVAPORATOR PROCESS BASED ON PROGRAMMABLE LOGIC CONTROLLER

By

Labib Falah 'Alauddin

20/462109/PA/20081

The use of SCADA systems in the industry is crucial for competing in the global market. This SCADA system is expected to reduce human involvement in the evaporator process, ensuring the quality of the resulting products. The development of Supervisory Control and Data Acquisition (SCADA) begins with the calibration of TM131 temperature sensors using an Omega CL1500 dry block calibrator based on calibration guidelines from the Badan Standarisasi Nasional (BSN). The calibration results showed an average correction value for the three sensors of 0.55 and an uncertainty of 0.95, which still met the tolerance values of the Company. Subsequently, the temperature sensors were installed in the field according to different points depending on the requirements of the evaporation process. The research continued with the design of SCADA, with the main components being the Programmable Logic Controller (PLC) CompactLogic 5380 as the main controller and a computer as the interface display. The result of this SCADA design is an interface display of the evaporator process for monitoring and control, display and automation program of the evaporator process, and trend data for storing and analyzing field parameters.

Keyword: Evaporator, Calibration, Programmable Logic Controller, Supervisory Control and Data Acquisition