

ABSTRAK

RANCANG BANGUN TRAINER KIT PENDISTRIBUSIAN BATU BARA BERBASIS PLC SCHNEIDER

(2025 : xiv + 49 Halaman + 48 Gambar +7 Lampiran)

RIDHAN ADITYA

062230310442

Jurusan Teknik Elektro

Program Studi D3 Teknik Listrik

Politeknik Negeri Sriwijaya

Industri batu bara merupakan salah satu sektor strategis yang mendukung kebutuhan energi di berbagai negara, termasuk Indonesia. Sistem pendistribusian batu bara sering menghadapi kendala seperti, efisiensi operasional yang rendah, serta risiko keselamatan bagi pekerja. Seiring dengan perkembangan teknologi, Programmable Logic Controller (PLC) menjadi solusi yang relevan untuk mengatasi permasalahan tersebut. PLC memiliki kemampuan untuk mengontrol dan mengintegrasikan berbagai perangkat dalam sistem industri secara otomatis, sehingga dapat meningkatkan produktivitas sekaligus mengurangi intervensi manusia dalam proses kerja. Dalam penelitian ini dikembangkan sistem pendistribusian batu bara berbasis PLC yang dikombinasikan dengan Human Machine Interface (HMI) dengan menggunakan software Ecostruxure Machine Expert Basic yang memungkinkan pemantauan secara real-time. Selain itu penelitian ini dikembangkan untuk mengetahui setting Konfigurasi analog input dengan proses aritmatika. Dengan memanfaatkan sistem ini diharapkan dapat meningkatkan efisiensi dan stabilitas pada saat proses pendistribusian batu bara.

Kata kunci: Industri batu bara, Programmeble Logic Controller (PLC) ,Eco Struxure Machine Expert, Analog Input

ABSTRACT

DESIGN AND CONSTRUCTION OF COAL DISTRIBUTION TRAINER KIT

BASED ON SCHNEIDER PLC

(2025 : xiv +49 Pages + 48 List Off Figure +7 Attachments)

RIDHAN ADITYA**062230310442****Electro Engineering****Electrical Engineering Study Program****Sriwijaya State Polytechnic**

The coal industry is a strategic sector that supports energy needs in various countries, including Indonesia. Coal distribution systems often face obstacles such as low operational efficiency and safety risks for workers. Along with technological developments, Programmable Logic Controllers (PLCs) have become a relevant solution to overcome these problems. PLCs have the ability to control and integrate various devices in industrial systems automatically, thereby increasing productivity while reducing human intervention in work processes. In this study, a PLC-based coal distribution system was developed combined with a Human Machine Interface (HMI) using Ecostructure Machine Expert Basic software that allows real-time monitoring. In addition, this study was developed to determine the analog input configuration settings with arithmetic processes. By utilizing this system, it is expected to increase efficiency and stability during the coal distribution process.

Keywords: Coal industry, Programmeble Logic Controller (PLC), Eco Struxure Machine Expert, Analog Input