

Application Analysis of PLC Technology in Electrical Engineering and Its Automation Control

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Abstract: At present, China's science and technology in the continuous development, in this process of the birth of many new technologies, in addition, computer technology is constantly applied in people's production and life, effectively promoted the development of management and production services in various industries. At present, PLC technology is widely used in electrical engineering and automation control, and has obvious advantages, which can ensure the sustainable development of electrical engineering and automation control. This article mainly analyzes the application of PLC technology in electrical engineering and its automation control

Keywords: PLC Technology; Electrical Engineering; Automation Control

Introduction

Current with the continuous development of China's social economy, in the process of electrical engineering also tend to be complicated, it can see a higher requirement of electrical engineering for automation control, the traditional artificial work mode can not be satisfied with the development trend of The Times, the application of PLC technology is the necessary way to improve the work quality and work efficiency. In addition to the PLC technology can also have a better development in the field of power management. Compared with the previous control technology, the PLC technology has obvious advantages, which greatly improves the efficiency of the management of electronic equipment.

1. Application characteristics of Electrical Engineering and Automatic control PLC technology

1.1 Work efficiency

The PLC technology improves the control, and the relay is also a kind of PLC technology, which plays an important role in automation and electrical engineering. The PLC technology relay is very different from the traditional technology. The PLC technology relay does not need wires, and will not be affected by too many external factors in the operation process. It greatly simplifies the data management and analysis automation, and ensures the efficiency of electronic equipment. The advantage of using PLC technology for electronic control is that the operation is more convenient, and the use of PLC technology can ensure improving the efficiency of automation and equipment management, and improve the use efficiency and reliability. The biggest advantage of PLC technology is that it is more convenient to operate, and it makes the work more efficient without too much human participation.

1.2 With safety and reliability

The PLC technology is also very reliable and safe. To improve the performance of the automatic system, the first step needs to improve its reliability and safety, and the safety and reliability can also guarantee the work quality and work efficiency. The application of electronic technology can greatly improve the reliability of the equipment, and PLC technology can provide stable automation equipment under complex conditions, so as to ensure the effective operation of electrical equipment. The application of PLC in electrical and automation equipment management improves the efficiency of electronic

equipment, enhances the resistance to interference, and provides automatic protection for the daily operation of electrical engineering and equipment^[1].

2. The role of PLC technology in Electrical Engineering

The technical role of PLC in electronic management consists of three components: digital control, automatic control and rapid response. Especially through the effective use of digital control function, in an emergency, accurate and rapid detection of equipment damage in case, the operating system is more efficient, more convenient, more automatic, and ensure the effective operation of the automatic integration function, automatic control is the traditional control mode into automatic control. At present, there may be some defects in the installation and operation process of electrical equipment. The traditional manual operation leads to the corresponding slow system, which is not in line with the development trend of The Times. And with the development of programming controller (PLC) technology, the traditional reading mode gradually becomes automatic. If there is a failure, the system will be automatically restored to prevent unnecessary errors and cause system damage. It also systematically reviews the current working environment, and timely responds to the problems in the process of the system operation, so that personnel can quickly and effectively deal with the equipment failure.

3. The Application of PLC Technology in Electrical Engineering and

Automation

3.1 Application to the order of control

As a new technology, PLC plays a very important role in the automation industry. Through continuous product updates, it has achieved good application results. At present, in many fields in China, PLC technology application in the sequential automatic control system plays an important role. In practical application, the scientifically based system program can reduce the number of repeated processing, greatly improve the efficiency of the program control, in addition to helping the electrical engineering automation in a stable state of operation, ensure the efficiency of the system operation, and greatly reduce the cost generated in the operation process. In addition, sequential control is usually an important part of the electrical engineering automation system, including two modules, namely the main program and functions. In this case, the relevant staff can carry out remote control according to the needs. In the process of sequential control, the programmable controller (PLC) system into the main station module, field sensing, and remote control module, at the same time, the technical personnel can according to the use of electronic equipment characteristics and automation system write scientific program, to ensure the correct application of PLC technology, to maximize the role of PLC system.

3.2 Application in closed-loop control

In terms of closed-loop control, the output information is processed and then returned to the beginning of the processing to ensure the closed-loop of the whole process, but in reality, the feedback will have a certain impact on the closed-loop control. In practice, these data should be adjusted several times to achieve the output results of the corresponding requirements. Closed-loop control is effective in China's industry. In the process of use, it and PLC technology are closely integrated together, and the tool performance is selected according to the motor, so that the tool is selected to meet the needs of automation. In addition, through the effective use of PLC technology, the closed-loop management and sequential control can be combined to improve the efficiency of the system and improve the intelligence of the system. In the process of closed-loop control, the system should be effectively handled and strictly controlled, so as to ensure the overall control level.

3.3 Application in switch system control

Research has shown that the switch system used by the equipment not only faces problems such as short circuit, but also consumes a considerable amount of electricity. The use of PLC technology to control the switching system can

effectively overcome these defects, while the rational use of PLC technology ensures the integration of electronic operation and editing information, creating favorable conditions for control. The PLC technology has its own advantages, not only helping to reduce the reaction time of the control relays, but also to improve the control efficiency, to save more time, and more importantly, to effectively solve the short-circuit problem, and to ensure that the equipment operates more efficiently. Although PLC technology has made remarkable achievements in electrical engineering and automation control and application, some defects are caused by many factors, which requires PLC technicians to deeply study and understand the characteristics of the technology, improve the use efficiency of PLC technology, to ensure that the technology guarantees production^[2].

4. Electrical engineering and automation application of PLC technology

scheme

In order to complete the data processing accurately and quickly, the use of PLC technology is needed, and the integration of data technology into the automation system, effectively demonstrating the automation of PLC, including computers and other information technologies, in electrical engineering, can effectively meet the requirements of automation. With the widespread application of PLC technology, electrical engineering becomes more common and easily understood, so it is important to develop effective measures to implement PLC technology.

4.1 Cultivate professionals

To improve the electrical system technology of PLC equipment managers, PLC needs experienced technicians to design the electrical systems, in which case we can improve their skills through effective training of our employees. It also improves the enterprise licensing process, attracting more professionals, and enabling the PLC technology to better operate when using the motors. In the application of PLC technology, the operational design theory should be considered, the PLC technical management personnel training, the PLC technology and the e-commerce system should be closely integrated together, the system use needs automatic communication with the computer system. Data management personnel must analyze the data in the database, and check the inaccurate data in the operating system in time, and make decisions on the non-standard data, and to present the non-traditional data in time. In this process, the administrator is required to fill in the non-standard data according to the data management status.

4.2 Follow the rules of use

Integrating PLC technology into the electronic control system requires a complete control and management system so that the operator can operate with the corresponding management system. Relevant units must also abide by the relevant rules in practice, first consider the actual characteristics of PLC application in electrical engineering, and write the corresponding use instructions according to the actual situation, and then in the process of implementing the system, according to the actual situation of each node to allocate the management personnel^[3].

Conclusion

In short, with the continuous development of science and technology in China, PLC technology is not only used in electrical engineering, but also is expanding its application scope. PLC technology not only improves the overall efficiency and performance of electrical engineering, but also can serve as an early warning aid to help the staff to find the defects of electrical engineering, making the electrical engineering automation more scientific, efficient and convenient.

References

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