

Application of electrical automation technology in electrical engineering

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Abstract: with the continuous improvement of China's scientific and technological level, many new types of technology gradually appear in people's life and work, including electrical automation technology. With the continuous improvement of people's living standards, electrical automation technology is more and more widely used in all walks of life, especially in the electrical engineering industry, the application of electrical automation technology has played an important role, which also promotes the further development of electrical automation technology. In view of this, this paper will analyze the application of electrical automation technology in electrical engineering, and put forward some strategies for your reference.

Key words: electrical automation technology; Electrical engineering; application

1. Overview and characteristic analysis of electrical automation technology

1.1 Overview and analysis of automation technology

The system of electrical automation itself is relatively complex, which is mainly composed of computer, communication engineering and power engineering. It is a very comprehensive software. The content of electrical automation technology in the development is very extensive, and the overall system is also more complex, involving many different forms of technology types. In the process of continuous development, automation technology has also experienced great innovation. According to the actual needs of different users, automation technology has also made some adjustments to its development concept. It is under the influence of the concept of keeping pace with the times that automation technology can better adapt to the needs of different enterprises in the society, thus ushering in a new peak of technological development. By applying automation technology to power plants, the efficiency of power plants can be further improved.

1.2 Analysis of the characteristics of automation technology

Automation technology itself has many characteristics and is supported by very detailed intelligent knowledge theory. It can process some system information and data in combination with wireless signals, and then output them. Some characteristics of electrical automation technology provide great convenience for people's daily life. In addition, the electrical automation technology has many excellent functions, such as self-detection function, which can reasonably regulate the software system. If there is a problem with the software, the electrical automation technology can turn on the self-protection function to avoid larger problems. These characteristics of electrical automation technology make it play a very important role in the actual electrical engineering, and its technical characteristics are gradually developing towards a more intelligent direction

2. Application value analysis of electrical automation technology in electrical engineering

2.1 Improve production efficiency

In China, electrical engineering is an important part of social development, especially in the context of information society, electrical automation technology has played a very important auxiliary role in the development of agriculture, industry and other industries. Under the influence of electrical automation technology, these industries have also been further developed and reformed. From the perspective of work output, the application of electrical automation technology to electrical engineering can significantly improve production efficiency, effectively reduce the difficulty of work in electrical engineering practice, and help employees better save working time. By introducing fully automatic production technology, the production level of electrical engineering enterprises can be greatly improved, the standardization and order of the production process can be improved, and the development needs of electrical engineering enterprises can be better met. Compared with traditional electrical engineering enterprises, electrical engineering enterprises applying electrical automation technology can achieve continuous operation throughout the day, which can significantly improve the production efficiency of enterprises, reduce the time wasted in daily production of electrical engineering enterprises, and promote further development of production level.

2.2 Improve enterprise efficiency

For all kinds of enterprises in the society, the application of electrical automation technology to electrical engineering enterprises can be seen as a perfection of the process of modernization. In this way, the production efficiency of enterprises can be greatly improved and the labor input of enterprises in the process of labor production can be reduced. Through the introduction of electrical automation technology, with the help of computer software and corresponding programs, the automatic operation of equipment in electrical engineering enterprises can be realized. This can not only improve work efficiency, but also effectively avoid many errors that may occur in manual operation, so as to reduce the waste of various resources and funds that may occur in the production process. On the other hand, by applying electrical automation technology to electrical engineering, the mechanization of daily work can be realized, which can reduce the number of workers employed by enterprises and avoid various taxes due to labor. Moreover, due to the reduction of the number of workers, personnel insurance can be significantly saved, the operating costs of enterprises can be controlled at a higher level, and the actual economic benefits of electrical engineering enterprises can be greatly improved.

2.3 Improve work quality

For industries such as industry and agriculture, the application of electrical automation technology to electrical engineering can

significantly improve the efficiency and quality of the actual production process, and also greatly improve the precision of processing activities. Compared with the traditional processing mode, especially for some parts processing or complex shape parts processing, the application of electrical automation technology can significantly improve the processing efficiency, Reduce the occurrence probability of defective products. In the manual operation mode, no matter how serious the workers are, there will always be some loopholes in the actual work, which will have a very large negative impact on the subsequent processing. However, after the introduction of electrical automation technology, the probability of error can be greatly reduced, so as to improve the machining accuracy of parts. In actual work, the operator only needs to design the corresponding program according to the actual needs, so as to further improve the quality of electrical engineering work. From another perspective, the application of electrical automation technology to electrical engineering can further promote the enterprise, enable the enterprise to get a longer-term development, and help the electrical engineering industry to move forward in a broader direction.

3. Application of electrical automation technology in electrical engineering

3.1 Application in building electrical engineering

Generally speaking, when electrical automation technology is applied to building electrical engineering, it can be analyzed from three aspects: building automation system, communication automation system and office automation system. Building automation system usually refers to the use of electrical automation equipment in buildings to realize the control and adjustment of lighting, air conditioning, ventilation, drainage and other systems, so as to ensure that buildings can have a comfortable environment. In order to achieve these goals, we can try to apply the electrical automation technology. Through various sensors and controllers, we can reasonably control the electrical equipment of the building, so that it can automatically sense the changes of the surrounding environment. This is also an important part of the building automation system. By applying the electrical automation technology to the building, It can provide many conveniences for people's daily life and work.

The communication automation system is mainly to realize the information exchange between the inside and outside of the building. By designing the communication automation system, it can realize the effective transmission of information in the building. With the help of electrical automation technology, the information in the building can be transmitted through pictures, sounds and other means. It can also be combined with information technology, big data technology and other means to complete the automatic transmission of information between buildings, so as to enhance the data exchange efficiency between buildings and improve the practical application effect of buildings.

3.2 Application in power grid dispatching

In electrical engineering, power grid dispatching is a very important form of expression. The application of electrical automation technology to power grid dispatching can significantly improve work efficiency, improve the balance of dispatching work to a new height, and provide sufficient assistance for the safe and stable development of China's power grid. Generally speaking, reasonable power grid dispatching can significantly improve the comprehensive capacity of power grid equipment, so as to better meet the needs of different users in power consumption, so as to design more targeted power consumption plans, and ensure the stability and sustainability of power grid dispatching work in combination with corresponding regulations. In addition, the rational application of electrical automation technology can make the power grid dispatching work more in line with national standards, realize the rational application of power resources, and safeguard the basic rights and interests of users. By introducing electrical automation technology into grid dispatching, it can realize the automatic distribution of grid resources. Combined with the corresponding software and programs, it can help grid dispatching realize the memory function, and distribute power more reasonably according to the daily power consumption of users, which can greatly improve the control level of grid system, It is conducive to the opening of relay protection equipment in power grid lines and enhances the management level of power grid dispatching. If we encounter problems, we can carry out high-level analysis on the fault points that may cause problems in combination with electrical automation technology, so as to improve the efficiency of fault diagnosis.

3.3 Application of distributed monitoring system in power plant

The decentralized monitoring system can realize the decentralized and centralized management of the production, operation and other stages of the power plant. It usually works in a multi-level way. Generally speaking, the constituent elements of the distributed monitoring system are workstation, high-speed data communication network, process control unit, Ethernet and so on. The process control unit mainly controls the production links of the power plant, and is responsible for processing the signals of various production units. At the same time, it can also receive and detect other relevant parameter information, For example, the global 24-hour monitoring of the operation of the grid, high-definition monitoring of grid outlets, etc., can help staff more easily troubleshoot. Combined with the test results, it can provide rich data for the management of the actuator, so that the decentralized monitoring system of the power plant can play a greater role in the work. By applying electrical automation technology to the decentralized measurement and control system of power plant, it can realize the monitoring, protection and detection of the production and operation of the whole power plant, greatly improve the actual work efficiency of power plant, reduce the labor intensity of power plant workers, enhance the stability of power supply of power plant, and is conducive to the sustainable and long-term development of power plant.

3.4 Application in Substation

By applying the electrical automation technology to the substation, it can realize the automatic control and detection of the substation, and help the power enterprise get a longer-term development. Under the influence of electrical automation technology, the substation can effectively solve various problems in the past manual operation, such as low efficiency, high resource consumption, and greatly improve

the operation stability of the substation. The introduction of electrical automation technology in the substation can carry out all-round, multi angle and full-time monitoring of the electrical equipment group. When there are problems in the substation equipment group, the automation system can timely find the existing security risks, and send an alarm combined with the corresponding data, so that the staff can carry out the troubleshooting work more timely and efficiently to ensure the quality of the substation work. With the continuous development of electrical automation technology, the application level of automation technology in substations has been further improved, and the workflow has become more scientific and orderly, which has gradually made the substation further develop in the direction of informatization and automation. By introducing wireless communication technology, the substation can transmit all kinds of electrical data information more efficiently, which greatly solves the problems of low efficiency and easy loss of traditional cable transmission signal.

4. Application and development strategy of electrical automation technology in electrical engineering

When electrical automation is applied to electrical engineering, there are bound to be many problems. We should find, analyze and solve these problems in time, so as to accumulate more experience in this process and help the electrical automation technology to be further innovated and optimized. With the continuous development of cloud computing and big data technology in China, electrical automation technology has ushered in new opportunities for progress. In the process of promoting the reform of electrical automation technology, we should pay attention to strengthening the application depth of electrical automation, so that various technologies can achieve cross development. For some of the core technologies of electrical automation, we should pay attention to the optimization and innovation activities, actively break through the current technical barriers, and strengthen the R & D investment of corresponding technologies, so as to lay a solid technical foundation for the subsequent application of electrical automation technology to electrical engineering.

In addition, we should strengthen international cooperation. The research on electrical automation technology in China started relatively late. Therefore, enterprises should pay attention to cooperating with international excellent enterprises and organizations to learn more theories and ideas related to electrical automation technology, which can effectively shorten the gap between China's electrical automation technology and developed countries, and help people apply it more reasonably to practical use in the future, Let electrical automation play a greater role in artificial intelligence and remote control of electrical engineering. To sum up, if we want to improve the application effect of electrical automation technology in electrical engineering, we can start from the application in building electrical engineering; Application in power grid dispatching; Application of distributed monitoring system in power plant; This paper analyzes the application of electrical automation technology in substation, so as to promote the application quality of electrical automation technology in electrical engineering to a new height.

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