Application of Computer Control System in Electrical Automation

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Abstract. With the improvement of information technology, China has continuously promoted the development of computer control system of electrical engineering and electrical automation in the current development process. In enterprise production, computer technology can be integrated into electrical engineering and electrical automation to realize real-time monitoring of controlled objects. Electrical engineering automation belongs to the field of modern electrical information, which is widely used in military, aerospace and industry. However, due to the late formation of China's industrial system, there are still some problems in electrical engineering automation, resulting in serious energy consumption problems. In order to improve the application level of electrical automation control system and create greater benefits for enterprises and society, it is necessary to strengthen the application research of electrical engineering and automation computer control system. Based on the application status of computer control system in electrical automation, this paper discusses the application strategy of computer control system in electrical engineering and electrical automation to promote the further development of electrical engineering technology in China.

Keywords: Computer control system; electrical automation; energy consumption

1. Introduction
With the development of China's economy and modern technology, the application of computer technology has been more and more popularized [1]. It is a novel management channel to integrate computer technology into electrical engineering and electrical automation. With the rapid development of power industry and power era, electrical engineering has entered a period of rapid development, which gradually abandoned the shortcomings of traditional electrical automation control in the development rules [2]. Under the social environment of sustained economic development and relatively popular modern technology in China, computer technology has been well developed and widely used [3]. The combination of computer technology, electrical engineering and electrical automation provides a brand-new management and control channel for Chinese industry [4]. After a long period of development, the computer control system gradually tends to be perfect in both practice and theory, especially the ultra-large-scale circuit interval further improves the automation and intelligent development level of electrical engineering [5]. Electrical engineering automation is a new
application technology with strong comprehensiveness, which directly affects the development level of China's heavy industry and is closely related to the production of enterprises [6]. Enterprises can introduce the computer control system of electrical engineering and electrical automation into the production process, and adopt the control system with high degree of automation to monitor the related control objects in real time [7].

After a long period of practice and development, electrical engineering has entered a period of rapid development under the promotion of various high technologies and high standards of modern engineering [8]. And in the process of development, keep up with the pace of development of the times, focus on solving the shortcomings and defects of the traditional electrical automation control system, and strive to explore new technologies to improve the electrical automation control system [9]. Nowadays, one of the factors of the rapid development of society is the invention and use of computers. At the present stage, computers have been practically integrated into people's daily life, and our life has undergone earth-shaking changes [10]. In the long-term application, in order to make its update direction more beneficial to its own development, the integration and development between the two will greatly promote the coordinated development of computer industry and electrical technology [11]. The application of computer technology in electrical engineering automation control system has shown great advantages in both practice and theory. The effective integration of computer technology and electrical engineering automation control system has created a brand-new management control channel for China's industrial field [12]. After a long period of development, the computer control system gradually tends to be perfect in both practice and theory, especially the ultra-large-scale circuit interval further improves the automation and intelligent development level of electrical engineering [13]. Based on the application status of computer control system of electrical automation, this paper discusses the application of computer control system of electrical engineering and electrical automation in order to promote the further development of electrical engineering technology in China.

2. Application advantages of computer control system in electrical engineering and electrical automation

2.1. Improve the quality of equipment testing

Today, with the rapid development of science and technology, with the rapid development of computer technology, it is closely related to the development of system platform, which is one of the important guarantees to improve production efficiency in China's industrial production. In order to keep pace with the times, keep up with the pace of development of the times and meet the needs of economic development and market, it is urgent to use computer control systems to transform and innovate traditional industrial technologies. With the progress of society and the development of science and technology, the computer system based on electrical engineering automation technology has been widely used, which provides assistance for the development of all walks of life, and improves the social labor productivity and people's quality of life. With the accumulation of practical experience in technology application, people have a more comprehensive understanding of computer automation, and computer control systems have gradually replaced traditional control methods in production activities. With the development of national economy becoming more and more prominent, electrical automation control system has been introduced in various industries to achieve more efficient control of the control system, which can not only greatly reduce costs, improve production efficiency, but also reduce the occurrence of product quality problems. Only by improving the safety performance of the system can the high efficiency of the system be effectively guaranteed.

The application of computer control system in the development of electrical engineering and electrical automation can realize the efficient inspection of some components in equipment, effectively improve the engineering quality, improve and improve the existing problems by combining other factors in the inspection process, and effectively reduce the production cost during production. The interaction between automation objects and automation customers is shown in Figure 1.
Under the development background of the information age, the computer technology has made remarkable development and progress, and the system platform has also been greatly improved, which provides an important technical guarantee for the improvement of industrial production efficiency. Therefore, in order to further promote the healthy and long-term development of China's industrial production, we should pay attention to the efficient application of computer control system, and reduce production safety accidents while ensuring work efficiency and progress, so as to improve living standards and quality. More and more electrical engineering enterprises depend on it more and more because of its wide application and high production status. After long-term technology accumulation and practical use, people have a more and more comprehensive understanding of computer automation, and the traditional control methods used in the past can no longer meet today's large-scale production. The data of computer control system of electrical engineering and electrical automation can be automatically recorded, analyzed, automatically controlled according to specific conditions, and automatically adjusted effectively, which greatly improves the applicability of computer control system, and can also improve the advancement of electrical engineering and realize better automatic control.

2.2. Improve the applicability of computer control system
With the acceleration of industrialization all over the world, intelligence has increasingly become an important project in industrial research all over the world. A series of experts and scholars have implanted automation concepts and modes into mechanical equipment in order to achieve the further mature goal of manufacturing industry. The computer control system itself has many functions, such as control, information, language, etc., and through programming, the computer system has the ability of logical thinking. Its central processor can issue instructions and operation commands to various functions of the computer, so that it can realize automatic control of machinery according to preset procedures. Therefore, applying the computer control system to the automation control system of electrical engineering can give full play to the advantages of computer technology and Internet technology, and meet people's demands for automation and intelligent use of electrical engineering. If an industrial enterprise has obvious progress and development, it proves that the enterprise applies the computer control system to the correct work in the process of operation [14]. Therefore, in most projects, if we want to ensure that the products produced by enterprises have better quality and promote the effective improvement of the work efficiency of enterprises, we must do a good job in monitoring the products and the production process of products.

Electrical engineering and its automation technology, as the key and important pillar of industrialization development, have played a great role in the application of computer technology, remote sensing positioning technology and other precision comprehensive technologies, and have used these technologies to improve their own level. Use the existing technology to establish an electrical automation environment based on computer control system. The intelligent design operation flow is shown in Figure 2.
In order to keep up with the development of science and technology and meet the development needs of mechanization and automation of industrial production, the traditional automation control technology is bound to be incompatible with the development of modern industry. It is urgent to introduce computer systems to realize the innovation and development of existing industrial technology. Electrical engineering and its automation technology are the key and important pillars of industrial development. The use of electrical engineering automation in China's computer system has involved various industries, and the popularity of this model has greatly promoted the improvement of the quality of life of domestic people. In the long run, the level of electrical automation is still an important symbol of a country's economic level and people's living standards. The application of computer control system in electrical engineering and automation control system is mainly based on the realization of humanized management and control in industrial production field, which can replace human beings in many high-risk industries, repeat mechanical labor, heavy physical loading and unloading, etc., not only improving work efficiency, but also ensuring safety and efficiency in the working process.

3. Application of computer control system in electrical engineering

3.1. Electric control
In the current development process, the electrical automation control system has been widely used in China's power industry, which can not only reduce the possible errors in the initial stage of electrical engineering design to a certain extent, but also have a significant effect on improving the accuracy and quality of power products. The automation control system of electrical engineering is composed of many components, and its internal structure is very complex. If any component has problems, it will seriously affect the good operation of the control system. In the field of electrical engineering and electrical automation, the scientific application of computer control system can meet the practical needs of electrical fault diagnosis, help maintain the benign operation of the whole electrical system, and promote the level of electrical engineering and electrical automation. Usually, when the electrical engineering automation control system has problems or the equipment itself has problems, it will affect the normal operation of the electrical engineering system, and then adversely affect the specific functions of the electrical engineering. For these electrical faults, it is difficult to find and deal with
them in time only by the staff's own experience and technology, which makes the fault maintenance time longer and affects the economic benefits of enterprises. The application of computer control system in electrical engineering and electrical automation can improve the efficiency of electrical fault diagnosis to a certain extent. With the support of computer technology, electrical equipment and electrical system can be scanned comprehensively, which is convenient for accurate analysis of fault causes and taking targeted fault treatment measures.

With the application of computer control system in electrical engineering and electrical automation, the electrical fault diagnosis and accuracy are obviously improved. By using the advantages of computer technology, the safety of electrical engineering equipment and system can be effectively checked and scanned, and the fault location can be accurately found in a very short time. Figure 3 is an example of communication in a three-dimensional network.

![Communication example in a three-dimensional network](image)

**Figure 3** Communication example in a three-dimensional network

In the process of electrical fault diagnosis, with the support of computer control system, it can bring great convenience to the detection and maintenance of electrical equipment, reduce the hidden trouble of faults, maintain the safe and efficient operation of electrical equipment, and promote the effective play of electrical engineering and electrical automation functions. In the past actual operation and control process of electrical engineering, many workers were needed to assist the normal operation of electrical equipment, which consumed a lot of labor intensity. At present, with the support of computer technology, the automatic control technology has effectively changed the working mode, reduced the labor intensity, and made the work efficiency significantly increased. In the new period of modern social development, the construction of economical society also puts forward special requirements for electrical engineering and electrical automation. The application of computer control system meets the development needs of economic construction and economical society, provides a reliable carrier for resource allocation, helps to reduce unnecessary consumption of resources and energy, optimizes electrical control system, and ensures the economy and reliability of power system operation. The automation system of electrical engineering is a comprehensive system engineering, which covers many subsystems with different functions. Computer technology can realize the good coordination and configuration of these systems, and combine the advantages of related performance according to the production requirements, so that the systems can cooperate effectively.

### 3.2. Optimal design

Applying electrical engineering and its automatic computer control system to electrical fault diagnosis, using its own function to scan all electrical equipment and its electrical operation system can find out and explore the cause of electrical equipment failure in time, so as to take remedial measures in time and reduce losses. Computer control system, as an important system that needs to be used in the continuous development of electrical engineering and electrical automation, is essentially a logical thinking mode. It can simulate the human brain to give orders to the loading and unloading equipment to carry out the corresponding engineering, and has a good effect on improving the automatic control ability and operation ability of machinery. Adding electrical engineering and its automated computer
control system into the electrical engineering automation control system is in line with the needs of economic-saving society construction, which can effectively optimize the allocation of resources in the electrical engineering system, achieve the purpose of reducing the number of staff, and thus reduce the operating cost of the electrical system [15]. In order to ensure the quality of the system in the design process, the integration of electrical engineering and its automated computer control system into the optimal design is conducive to reducing the problems of irregular design that occurred in the design process of previous designers, and reasonably improving the problems of electrical equipment operation failures, thus achieving the purpose of improving the design quality of electrical engineering products and promoting the development of electrical engineering products towards scientific, standardized and high quality.

The integration of electrical engineering and its automated computer control system into the optimal design can effectively reduce the operation failures of electrical equipment caused by non-standard design, so as to improve the design quality of electrical engineering products and promote the development of electrical engineering products towards scientific, standardized and high-quality direction. Figure 4 is the flow chart of control system fault diagnosis algorithm.

![Figure 4 Control system fault diagnosis algorithm flow](image)

The application of computer control system in electrical engineering and electrical automation has a distinct embodiment in expert system control and neural network control. Many electrical controls interact with each other to provide reliable support for electrical automation operation of electrical engineering development. Figure 5 is an artificial intelligence tracking diagram of electrical automation control.

![Figure 5 Artificial intelligence tracking diagram of electrical automation control](image)

In order to create a safe and good operating space and meet the technical requirements of automation process in industrial production process, it should be well controlled according to the specific conditions in the production process, and computer technology can effectively meet this requirement. Incorporating electrical engineering and automation into the optimal design of computer control system can effectively reduce the running faults of electrical equipment, improve the design quality of electrical engineering products and promote the electrical engineering to be regular and high quality. The computer control system can adjust the automatic control system by using its own unique functional modules. When the working environment changes, the computer control system can issue instructions to the related automatic control system functional modules, which can adapt to the actual
working conditions and reduce the occurrence of accidents.

4. Conclusions

Electrical engineering and its automated computer control system have played an unparalleled role in the specific application of electrical fault diagnosis, electrical control and optimization design. The application of computer control system in electrical engineering and electrical automation can not only promote the improvement of equipment inspection quality, but also promote the applicability of computer control system. With the continuous improvement of science and technology development level, the development speed of electronic automation technology is accelerating day by day, and the computer control system is effectively applied in the unit operation, which not only ensures the overall adjustment and application quality and effect of steam turbine, but also promotes the further improvement of electrical engineering and its automation level. Nowadays, with the continuous improvement of science and technology and the rapid development of electrical automation technology, the computer control system can be scientifically applied during the operation of the unit, which is helpful to improve the application effect of steam turbine regulation and provide reliable support for the improvement of electrical engineering and electrical automation level. Managers should actively introduce advanced technical concepts, improve the personnel management system, strengthen the computer foundation of corresponding operators through professional skills training, and use cloud platforms and big data to form dynamic and three-dimensional regulation and supervision in all aspects.

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