

# Analysis of the Application of Intelligent Technology in the Automation Control of Electrical Engineering

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**Abstract:** This paper mainly describes the characteristics of electrical automation in intelligent building engineering, including the linkage of lighting, air conditioning, security, real-time monitoring, power supply requirements, controller requirements in electrical automation design, and the application of electrical grounding technology.

**Keywords:** Electrical automation; Real-time monitoring; Intelligent building.

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## Introduction

China attaches importance to the research of electrical engineering and vigorously explores automation technology, which lays the foundation for the development of the manufacturing industry. The enhancement of the level of market economy needs the support of the manufacturing industry, and the development of the manufacturing industry should start from the perspective of electrical engineering automation, especially to realize the intelligence of electrical engineering<sup>[1]</sup>. Generally speaking, automation technology attaches importance to the processing of information, which can be controlled by electrical engineering with the assistance of computers, which greatly improves work efficiency. With the development of science and technology, automation of electrical engineering can not meet the needs of the times, and then evolved into intelligent technology, to achieve a breakthrough in work efficiency and quality, and promote the improvement of the national economy.

## 1. Intelligent technology advantages

### 1.1 High precision

From the perspective of composition, intelligent electrical engineering contains a wealth of scientific and technological elements, such as computers, engineering chips, monitoring components, etc. Due to the use of advanced technology, intelligent technology exhibits a high degree of precision. The mutual cooperation of complex components produces high-precision electrical products and ensures the stable development of electrical engineering.

### 1.2 Flexibility

The emergence of automated electrical engineering reduces the amount of human input, and consequently, the frequency of maintenance of equipment by personnel is correspondingly reduced. However, once the equipment is unstable, it is very likely that the monitoring work is not in place and transformed into equipment failure, which reduces the quality of electrical products, and seriously leads to the stagnation of electrical engineering. Intelligent technology has a significant flexible characteristics, can be completed in a short period of time between the coordination of the systems, and jointly undertake the problems caused by the instability of the equipment, so that the operation of the equipment has been guaranteed, and the stability is significantly improved.

### 1.3 Real-time Intelligent

In recent years, the rapid development of computer technology, coupled with the continuous upgrading of sensor components, has led to the realization of intelligent electrical engineering innovation and strengthened the level of intelligence. The current intelligent electrical engineering has independent information processing ability, can according to the demand for relevant data acquisition and analysis, to meet the quality requirements of electrical products. Intelligent electrical engineering can carry out independent thinking and formulate effective processing programs for problems, similar to the brain, with high intelligent attributes.

## 2. Characteristics of intelligent technology in the electrical industry

### 2.1 Intelligent technology promotes the development of unmanned industry

At present, the extensive application of intelligent technology in the electrical engineering industry effectively reduces the use of man-

power, in which the number of equipment operators has decreased significantly, which strengthens the stability of the equipment from a side perspective. For example, after the introduction of intelligent technology, electrical engineering equipment can be remotely controlled under the support of network technology, in this way, the operator only needs to carry out simple screen control, which maximizes the response speed of the equipment. In addition, because the intelligent technology can be remotely controlled, the safety of the operator is guaranteed, especially the combination of 5G technology, which further improves the efficiency of the equipment and completes the development of the unmanned industry, which is the inevitable trend of the future development of the electrical industry.

## **2.2 Intelligent technology does not require a control model**

For the control system, intelligent technology has significant advantages, mainly in breaking the constraints of model design. Generally speaking, the traditional electrical engineering control system must be based on the model design, if the model design changes, its corresponding control system will lose its role. Intelligent technology emphasizes the precise control of the system and is able to do accurate processing of the changing model design, which essentially improves the controllability of the system. It can be seen that the system control of intelligent technology does not require model design, and its control effect is more accurate, in line with the development needs of the times.

## **3. Application of intelligent technology in electrical engineering automation**

### **3.1 Optimized design of electrical**

Electrical engineering automation is different from the conventional industry, which shows great complexity, especially the product design often needs to consider the practicality of the product and economic factors, so it is more complex. Currently, there are two trends in common electrical product design<sup>[5-6]</sup>, the first is the improvement of the design theory system, which requires a breakthrough in product design from the theoretical point of view; and the second is the improvement of the product production experience, which is a process dominated by the continuous optimization of the production process. The former considers the design theory, which is gradually eliminated under the market competition and emphasizes the practicality of the product; the latter is centered on the innovativeness of the product, which requires a long time of practice and is often not conducive to the development of the product. Intelligent technology effectively solves the above problems and improves the intelligence of electrical engineering and the quality of electrical products with the assistance of computers. Through the simulation of electrical products in the computer, the potential problems of the products are solved in advance, and the cost pressure in the production process is reduced.

### **3.2 Realization of intelligent control**

To ensure the stable development of the electrical engineering industry, we should focus on analyzing intelligent technology. The integration of intelligent technology makes the electrical industry develop rapidly, which helps to improve the national economy. Currently, China has listed intelligent technology as an important research topic, requiring the electrical engineering industry to realize intelligent control and expand the coverage area of intelligent technology in the coming time. From a macroscopic point of view, there are various intelligent control methods, which can be roughly divided into three major categories: firstly, fuzzy control, secondly, neural network control, and finally, expert control. Different intelligent control methods have differentiated characteristics, regardless of which control method must do real-time monitoring of equipment operation, in the first time to grasp the operating conditions of the equipment, timely detection of problems and solve problems. Only in this way can we ensure the intelligent control of electrical engineering and the production of high-quality electrical products.

## **4. Implementation program to promote the application of intelligent technology**

### **4.1 Emphasize the research and development of intelligent technology, create a high-level technology research and development platform**

Intelligent technology research and development and application is not an overnight thing, need to consider many factors. First of all, provide sufficient resources for intelligent technology researchers to ensure the smooth progress of scientific research. For enterprises, they should fully consider their own situation, summarize the application needs of intelligent technology, and then combine with other enterprises to jointly create a research and development system. R & D system needs to include multiple directions of scientific research personnel, for this reason, enterprises and universities to cooperate, and jointly cultivate advanced intelligent technology researchers, to strengthen the level of equipment operation of the internal operators, with practical action to promote the development of intelligent technology. Secondly, to innovate the concept of intelligent technology development, the relevant enterprises are required to build a high-level technology research and development platform, and do a good job of scientific research leadership from a macro perspective.

### **4.2 Introducing advanced experience in intelligent technology and realizing the combination with our own technology**

Although China's research on the electrical industry has made great progress, there is still a significant gap compared with Western

countries. Western countries have been researching electrical engineering for a relatively long time and have gained rich experience. Take the United States as an example, intelligent electrical engineering to achieve a comprehensive application, the corresponding intelligent technology tends to be perfect, with a high level of hardware and software facilities.

## Conclusion

The construction industry through the introduction of advanced technology and equipment at home and abroad, to improve the overall quality of the building, the current electronic technology has been rapid development, in the construction industry, electrical engineering has also been widely used, which is most representative of the application of electrical automation technology. The application of electrical automation technology in modern construction not only represents the development of science and technology, but also an important symbol of the construction industry from the traditional mode into a modernized construction mode.

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