

# Computer Electronic Control Technology and its Application

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**Key words:** computer; electronic control technology; application

**Abstract.** In the case of information technology, the application of computer in various industries is becoming more and more extensive, which provides many opportunities for the development of computer electronic control technology. At present, the computer electronic control technology need to involve the subject technology, automatic control technology, electronic information technology, in order to effectively save, process, processing of various data, the effective regulation of computer electronic control system, and ultimately improve the overall system efficiency. In this paper, computer electronic control technology

## 1 Introduction

The application of computer electronic control technology is put forward in order to give full play to the role of the electronic control technology, and provide important support for the sustainable development of the industry.

With the advent of the Internet era, computer electronic control technology in the application of the industry, can greatly reduce the cost of production, reduce energy consumption, and effectively improve the efficiency of the production process, is the future development of the industry must attach great importance to the direction of one. Therefore, the application of computer electronic control technology has a more comprehensive understanding, for promoting the development of electronic control technology has important practical significance.

## 2 Overview of computer electronic control technology

Under normal circumstances, automatic control is mainly refers to the absence of human manipulation, the device in accordance with a predetermined program for its own operation, in the process of continuous promotion and application of computer technology, the production of electronic control technology can better realize the control and regulation of the system, the stability and reliability of the whole system has a significant impact. Therefore, in the computer system to play a powerful data collection, transmission, application and other functions, the entire system can be more efficient and safe, is an important guarantee for the realization of system automation. Thus, in the era of information network, the combination of computer and automatic control system is the inevitable trend of social development, and it is important to promote the sustainable development of human and economy. In the process of practice, computer electronic control system mainly includes two aspects: computer hardware control and computer software control.

In computer software, computer software can guarantee the system to run. It is an important basis for reducing accidents. It is compiled by computer language. Computer hardware mainly includes control object, computer, related equipment and channel. It has many types and functions. It has great effect on the performance of automatic control system. At present, the computer electronic control technology is more commonly used in supervised control system, operation guidance control system, direct digital control system and field bus control system, and people's life, work and study and so on each aspect has very close contact, it is our country information technology, network technology future development need to pay attention to one of the direction.

## 3 Specific application of computer electronic control technology

Analysis of the current application of computer electronic control technology, the specific

application of the main include the following several aspects:

### **3.1 specific applications in Mechatronics**

At present, mechanical and electrical integration includes electronic design, computer software system, mechanical device, etc., the use of technology in general have mechanical technology, computer technology, power electronics technology, in order to carry out effective supervision in the production process, so as to ensure the stable operation of electric power integration system. According to the production situation of various industries, the mechanical and electrical integration in numerical control machine tools in the application of a wide range, you can use the full use of numerical control technology to improve the production operation of the function, progress and structure, etc.. At the same time, in the case of combined multi thread and multi CPU, the structure of the whole numerical control machine tool can be improved, the numerical control function can be improved, and it is important to improve the production efficiency of NC machine tools. In the actual production process, the perfect combination of computer electronic control technology and mechanical control technology, can promote a variety of technology innovation, and more widely in various fields

Extensive application, not only can make the industrial production more perfect, but also make people's life, work and study more convenient, for the promotion of social progress has important role.

For example: in the scientific and technological level of continuous improvement and the development of the robot, the full use of PLC can be a robot manipulator, the actual use of the robot more and more,

Not only make a variety of new products, new features continue to emerge, for the use of mechanical hand instead of manual has important role. At present, the industrial robot has many characteristics, such as repetitive programming, multi-function, multi degree of freedom, automatic control and so on. If it can be used not only to reduce the intensity of the workers, the product quality, output and work efficiency can be effectively improved, and finally reach the purpose of reducing production cost and saving production materials.

With the continuous development of agricultural production technology, various mechanical equipment of the cab instrument panel is replaced by electronic monitoring instrument, which makes a single parameter display to be effectively changed, which brings more convenience to human computer interaction. In the case of information technology, the virtual instrument display terminal is the future development direction of our country control device, instrument and so on, in order to carry out reasonable call to the database according to the actual demand, and finally get the data, voice and other media information. According to the current

Application of mobile devices, computer electronic control technology can also ensure that data information is stored dynamically, in order to ensure that data information can be effectively processed in the case of the use of stored cards for various data.

In daily life, the application of PLC in the automatic vending machine, crossroads traffic lights information changes, in the case of using the vending machine, customers can choose according to their own needs, in order to effectively identify and carry out the next step of the customer into the future, PLC and optical sensors, and ultimately in the role of the control system to output customers. And in the traffic signal lamp system, the reasonable use of computer electronic control technology, such as the intersection of traffic signal changes can be achieved by the PLC technology to ensure that the control time and the actual display. At the same time, the application of computer technology in computer horizontal machine, can provide convenient for the mechanical knitting industry, for improving the mechanical performance, production efficiency, etc.. Under normal circumstances, the cross machine is accomplished by hand, the computer horizontal machine is more complex preparation process,

And the reasonable application of computer electronic control technology can realize the automatic control of the computer, in order to ensure the effective control of the mechanical sand, the back of the machine, and finally achieve the real purpose of improving the efficiency of the machine.

### **3.2 specific application of electronic control device for locomotive**

According to the running situation of the electronic control device of the locomotive, the specific application of computer electronic control technology mainly has the locomotive information transmission device, the electronic control device of the locomotive, the electronic control device of the locomotive body and the electronic control device of the locomotive chassis. In the case of continuous expansion of computer application, data acquisition and processing can be effectively detected and controlled by computer, and the computer detection and control system plays a very important role in the electronic control device of locomotive.

In the current production technology continues to improve the locomotive, locomotive engine electronic control device mainly comprises a fuel injection control device, locomotive ignition time control device, idle control device and a control device composed of recirculation, the fuel fire control device is compared with the effective control of air and fuel, to ensure that the exhaust emission, fuel consumption the amount of effective control, is an important way to realize environmental protection and energy saving; ignition time control device is to ensure that the main locomotive locomotive in different environment, so that the ignition state of the engine in the best condition; recirculation control device can ensure the effective use of fuel, and effectively reduce emissions of harmful gases. At present, the locomotive information transfer device mainly includes the information transmission device, the vehicle navigation device, and the cellular mobile phone, which can effectively receive the signal from the satellite, and select the most appropriate route according to the situation, destination and road conditions.

Usually, the chassis of vehicle electronic control device is composed of four wheel steering device, the electronic controlled power steering system, cruise device, automatic transmission, electronic control suspension device, driving antiskid device and anti lock braking device is composed of. The electronic control power steering system can improve the reliability and safety of the locomotive. The four wheel steering device can control the speed of the locomotive. The speed can be controlled by controlling the speed of the locomotive. It is important to improve the safety and environmental protection. The electronic control suspension device can achieve the purpose of improving the stability and comfort of the locomotive. It is important to improve the safety and environmental protection. Under normal circumstances, the electronic control device is composed of locomotive electronic light control device, air conditioning control device, locomotive safety air bag control device and information display system, which is used to control the safety of locomotive, and to realize the automatic adjustment of locomotive air conditioner. The information display system can be used to make the engine to understand the current situation of the locomotive. Measures to reduce the damage to the engine.

### **4 Conclusions**

In general, in the case of high tech R & D efforts, the application and promotion of computer electronic control technology is the real demand of the market, the development of various industries, and has an important influence on the development of society. Therefore, according to the actual development of the industry, the focus on the reasonable application of computer electronic control technology, is conducive to improving the efficiency of the industry, and ultimately to reduce investment costs, improve economic efficiency, etc..

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