



PLC selection method

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Abstract: With the continuous development of science and technology, human beings gradually become intelligent. Various intelligentization also drives the innovation and development of various controllers. Among them, PLC is more and more popular, its products are more and more, the function is more and more perfect. Different PLC performance, capacity, function, structure, input and output, power module are different. Therefore, the correct choice of PLC controller to improve the control system technology is particularly important.

Keywords: PLC; selection: function: model.

1. Selection of models

When considering the choice of PLC model, it is required to meet the most basic functional requirements of the relevant intelligent system, and to consider the application of PLC modules in the system, not only to ensure its reliability, and to facilitate staff maintenance. To sum up, the selection is mainly based on the following aspects.

1.1 Structure

The PLC that exists on the market at present, according to the structure it includes two kinds: integral PLC and modular PLC. The integral PLC is small in volume, all modules are put in a housing, the structural gap is relatively small. There are many I/O types and many extension units. Modular PLC, I/O point less types, because it is modular, so it is easy to control, more suitable for more complex control system.

1.2 Installation method

There are three installation methods of PLC system: centralized, remote I/O and multi-plc network distribution. The centralized installation does not need to set up the

remote I/O drive hardware separately, but directly put all the control modules together, which is very convenient to control. Generally speaking, if PLC is used in large systems, remote I/O is used, because this type of installation can be connected to distributed devices, that is, can be installed in each field where the devices are located. As the name implies, the distributed network of multiple PLCs means that when devices need to be controlled independently, but when devices need to be interconnected, communication CARDS should be added to the PLC in this case [1].

1.3 Requirements for system reliability

For the general system, the reliability of PLC can meet. For systems with high reliability requirements, consider whether to use redundant systems or hot standby systems.

1.4 Try to unify the models

A system needs to facilitate enterprise management, should choose the same PLC model, so convenient enterprise management system equipment. The following three aspects are mainly considered: (1) since the same PLC model can be used, its modules can be used for standby, so it is easy to buy; (2) the main functions are similar, facilitating the unified debugging of the equipment; (3) due to the unity of their models, external devices can achieve the common equipment between the same connection ports, so as to achieve the sharing of resources.

1.5 Capacity

Storage memory capacity is usually estimated at 10-15 times the number of digital I/O points, plus 100 times the number of analog I/O points, which is the total number of memory words (16 bits per word), plus a 25% margin to consider [2] . In order to ensure the normal operation of the control system, the memory capacity of PLC is usually required to have 256 I/O points, that is to say, at least 8K memory is selected.

2. Function selection

2.1 Corresponding functional requirements

From the realization of functions, PLC is generally divided into low, middle and high-grade. For some systems, it is only required to set, control and complete simple logic operation. If the system completed the module or digital-to-analog conversion requirements, with a small number of arithmetic operations, data transmission and other functional requirements, you can use the enhanced low-grade PLC; In the case of more complex control situation to choose high-grade PLC, such as system requirements to achieve some control algorithms, requirements to be able to communicate and transmit information and other functions.

2.2 Response speed

For the response speed of PLC, the response speed of general PLC can meet, if you want a wider range of application requirements, you can choose the PLC with high speed I/O processing function, or you can consider choosing the PLC with fast response module.

3. Input/output selection

The selection of input module should pay attention to the following three aspects: (1) selection of voltage (2) number of points connected at the same time (3) threshold level; Selection of output module :(1) selection of output mode; (2) output current; (3) number of points connected at the same time.

4. Power module selection

The choice of the power module is simple, considering only the output current. The rated output current of the power supply module must be greater than the sum of consumption current of the CPU module, I\O module, special module, etc., with a certain margin [3]. Specifically, I mainly pay attention to the following aspects :(1) output power of the module; (2) input voltage of the module; (3) wiring problems; (4) grounding problems of the system [3].

5. Conclusion

As there are too many kinds of PLC controllers in the market, the characteristics of different kinds of PLC controllers are different, so the method of PLC selection may be insufficient. Therefore, the choice of PLC or to decide according to the actual situation.

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