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The Packaging Automatic Bagging Control System in PLC

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Abstract: This paper adopts Siemens PLC-1200 as the control center, and this paper uses 9 input signals and 6 output signals to achieve the function of filling, packaging, quality inspection, product classification, non-conformance alarm and other processes for control.

Keywords: PLC, Control, Automatic packaging.

1. Introduction

This topic selects a programmable controller to implement the control process of the entire system. A programmable controller is an electronic system that is operated by numbers. Programmable controllers are created for easy operation in industry. The memory used in the programmable controller is very simple and can be programmed, and the program written is used to perform storage logic operations and sequence control, timing and other instructions, and control various types of mechanical equipment or production processes through various inputs and outputs. The programmable controller is very important as the core of this design

When the packaging automatic bag control system begins to start, enter the initialization, and then automatically judge, if not manually operate into the automatic mode, start to fill the seal, and then detect the separation of qualified products and unqualified products.

Packaging automatic bag control system wiring diagram, as shown in Figure 1. The CPU model used in this design is 1214C AC/DC/RLY, the upper left is the supply voltage, the hardware input voltage is 24V, and the output voltage is 24V. The DLA is the input of the hardware PLC-1200. This design diagram corresponds to the ladder diagram of this design, i0.1 is the filling position, i0.2 is the sealing position, i0.3 is the quality inspection position, i0.4 is the conveying 2 detection, i0.5 is the conveying detection, and i0.7 is the fault reset. i1.0 is the manipulator position 0, i1.1 is the manipulator position 1, and i1.2 is the manipulator position 2. This is followed by AI, which is the analog input iw64 quality acquisition. The following DQa is the output end of PLC-1200, q0.0 is conveyor 1, q0.1 is conveyor 2, q0.2 is conveying 3, q0.3 is filling, q0.4 is sealing, q0.5 is manipulator suction, q0.6 is manipulator right shift, q0.7 is manipulator left shift, q1.0 is alarm.

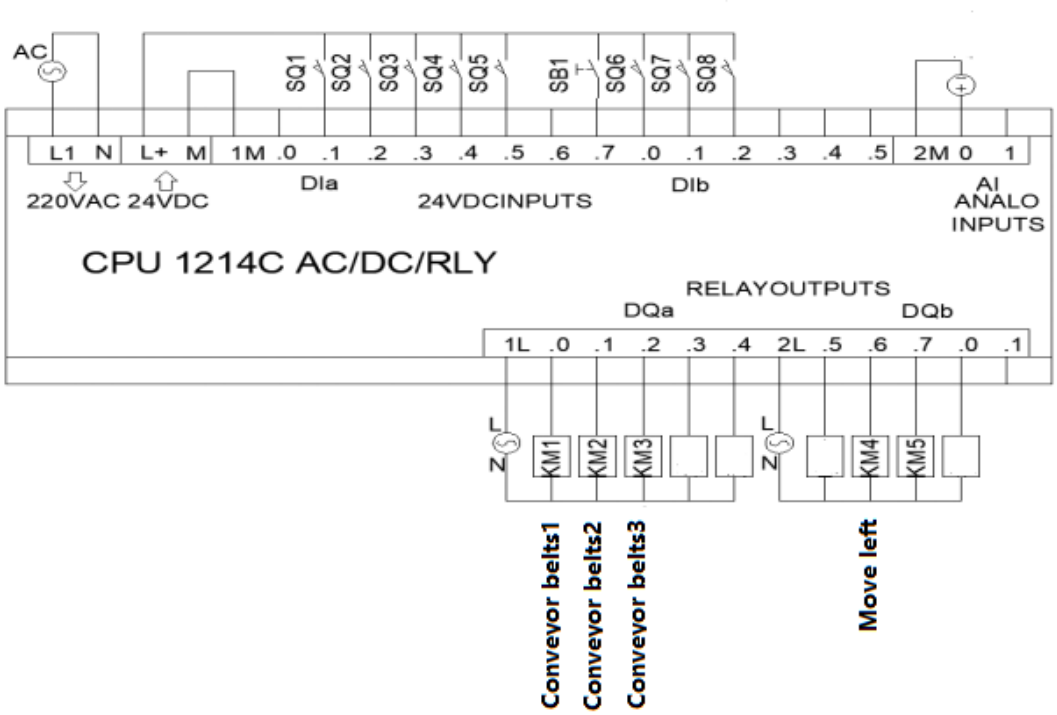

Figure 1. Wiring diagram of the automatic bag loading control system for packaging

The software used in this design is the configuration software, configuration (Configuration), the so-called configuration software, that is, the packaging automatic bag control system using some design and interface drawing, by simulating the running state of the designed project process.

The configuration screen design of the automatic bag loading control system for packaging is shown in Figure 2. According to the design requirements of the automatic bag loading control system of this package, the actual factory automatic packaging assembly line is simulated. The left side of the screen contains a conveyor indicator and a display sign for the "box". When the box moves out from the sign displayed on the left side, the conveyor belt changes from a red light to a green light, and when the box stops moving, the conveyor belt indicator light changes back to the original red. In order to make the demonstration effect of this design more realistic, the packaging box selects the milk carton found on the Internet and applies it to this design by adding.

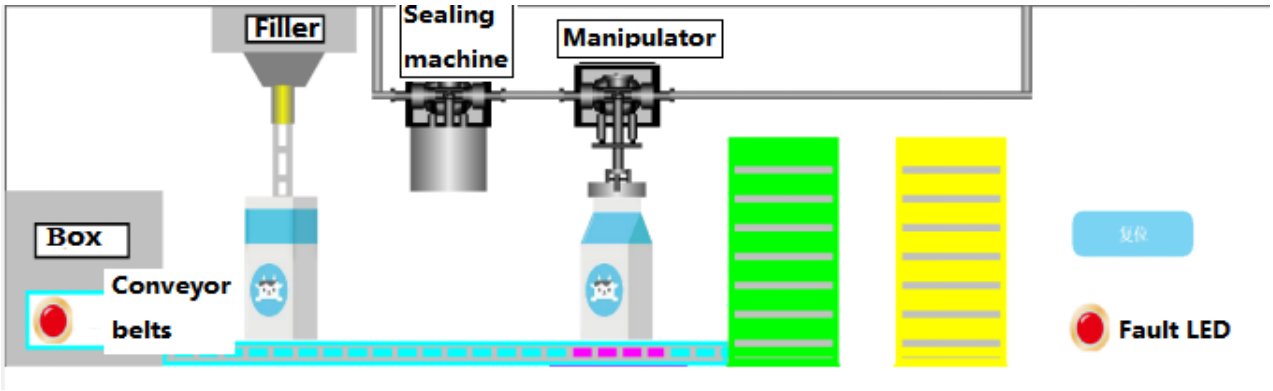

Figure 2. Packaging automatic bag loading control system configuration screen design drawing

2. Conclusion

This design simulates the specific operation of the packaging machine in the actual factory. If the configuration software in the system is replaced by the Fanyi series touch screen, remote monitoring, data setting and remote maintenance via communication modules can be realized. It is also possible to increase the analog detection, set more freely in the control, and the processing accuracy is higher to meet different needs.

References

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