

Research of Control System for R-Type FACP

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ABSTRACT

The usage of R-type fire alarm control panel (R-type FACP) is getting more attention due to the more rigid regulations in the recent years. The development of R-type FACP is aimed to improving the routing of the external circuit loop and to sensing the changes of the room smoke and temperature in contrast to the conventional P-type FACP. This system is primarily composed of loop control unit, main control unit and LCD display unit, which are interconnected to operate with an GUI-control PC software. The following methods are employed to ensure the normal operation of the R-type FACP. First, the loop control unit is used to read/write the signal from/to the external modules and sensors by using dsPIC30F4011 micro-controller. Second, the main control unit is adopted to control the external fire-control panel and to issue the alarms when the system has got trouble or has sensed fire smoke/high temperature by using W78E52 micro-controller. Third, the LCD panel can display the corresponding trouble messages through the appropriate settings with W77E58 micro-controller. Finally, the GUI-control software developed in Borland Delphi can display the different fire-alarm message and its corresponding fire place. This software can also display the real-time data of FACP and can issue an alarm signal when the system has received the trouble messages from external modules/sensors, or FACP itself, etc. Through the careful integration of this system, the results show the strong capacities of this architecture when applying to many control systems in the industries. Furthermore, the micro-controller can be applied to many industrial controllers and consumer electronics due to its smaller size and lower power consumption.

Keywords : Micro-controller、 Fire Alarm Control Panel、 Visual programming design、 Real time supervision and control

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