



Online remote monitoring and surveillance system of main fan in coal mine

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Abstract

The main coal mine ventilation fan is the main equipment in the coal production. As the control center is far away from the fan test-site, once the ventilation system is at fault, the staff is difficult to get an alert in timely in order to take effective measures to ensure the production safety. In connection with the current application status of mining ventilation system, this paper describes an new online remote monitoring and surveillance system that it utilize the intelligent data acquisition modules for data acquisition, configuration software for programming and communications network for connecting the on-site monitoring surveillance systems to the LAN. The system can integrate the computer monitoring, surveillance and local area network communications together. And then apply it into the online remote monitoring and surveillance system. The main fan for real-time continuous monitoring and fault alarm are implemented to improve the reliability of the safety operation of equipment. The mine production has a strong safety guarantee.

Key words: *Ventilation fan, Configuration software, Online remote monitoring, Surveillance system*

1. Introduction

The ventilator fan, known as “the lungs of mine”, is one of the four major fixtures in the mining industry, shouldering the burdens of insuring fresh air, discharging the dust and dirty air and insuring production safety. For this reason, it is imperative to monitor the ventilator in real-time. In general, the ventilation shaft is far away from the mining area. In the past the communication control measures were rather incomplete. It was very difficult to achieve real-time dynamic management. Therefore, this paper has developed an new online remote monitoring and surveillance system, meeting the above requirements, to achieve a perfect on-line remote real-time monitoring function.

2. System structure

This paper has developed a on-line monitoring system of ventilation fan based on industrial computer. The system consists of industrial computers, software of upper machine (Force Control software), data acquisition module, on-site sensors and wireless communication network composed of the main ventilation fan. It has many functions of on-line monitoring the running conditions in real-time, auto-recording and analysing the collected data, identifying the hidden problems and alarming in timely. The system can improve the reliability of the safety operation of equipment and play an important role in ensuring proper and safety production