

PC Control for coal conveying system



→ Industrial PCs and Embedded PCs from Beckhoff are used in the North Mine open cast coal facility in Inner Mongolia, operated by CPHCG (China Power & Huolin River Coal Group). Extracted coal is delivered via a belt conveyor to the Huolin Guote power plant over a distance of 5 km. Production and management are handled by controllers using real-time industrial Ethernet.

The conveyor system consists of four belt conveyors running with a throughput of 1,200 tons coal per hour. The basic tasks of the central control system include monitoring and control of the conveyor belts and crushers installed in the coal conveying system. At the same time, status data relating to operation, fill level and conveyor belt scales are displayed.

The system features two Beckhoff C5102 Industrial PCs, two 17-inch Control Panels installed in the control center and three CX1000 Embedded PCs. Two of the CX1000 controllers deal with control functions. They are installed de-centrally at distances of 2450 m and 3100 m from the central control station. Ethernet glass fiber cables (10/100 Mbaud) ensure reliable and fast data exchange.

A C5102 Industrial PC is used as the central PC and deals with the following tasks:

- | Display and central control of intermediate conveying system, transport, bunker feed, bunker distribution, primary crusher, and main crusher
- | Real-time status display of pull switch, slope switch, slides, obstruction, conveyor belt scales, and fill level meter
- | Display and online monitoring of operating voltage, current and effective power, as well as electric power of the motors for the primary and secondary crusher, transportation, bunker feed, and bunker distribution



One of the local CX controllers logs and verifies data from local devices such as the protection unit for the conveyor belts and the intermediate conveying system, as well as the signals from central, local, operating and emergency stop units. The voltage, current, energy consumption and output of the intermediate conveying system and the primary and secondary crusher are monitored online via a local KL3403 power measurement I/O terminal so that any faults can be detected. A further CX1000 controls the protection functions for the intermediate conveying system and feeding of the coal bunker.

- Beckhoff China www.beckhoff.com.cn
- CPHCG www.cpiecb-hlh.com