

Automation of blast furnace operations Xuanhua Group looks to Freelance — then and now



Xuanhua Iron & Steel Co., Ltd. is the key enterprise of Hebei Iron & Steel Group (HBIS). Its main production equipment includes four blast furnaces, five converters, nine steel rolling production lines, six coke ovens and 11 power generation units. It has an annual production of 8 million and 8.2 million tons of pig iron and steel, respectively.

Xuanhua has a total of four large blast furnaces, three of which use ABB's Freelance distributed control system. According to the customer, Freelance adequately meets the precise requirements of the processes, specifically the need for fast communication speed, safety communication network configuration and an intuitive user-friendly operation interface, to name a few.

The technical engineers of Xuanhua also have a deep experience in engineering and maintaining Freelance as Xuanhua has been using Freelance for many years.

For this project, the control conditions for Xuanhua's blast furnace #2 required technical personnel to integrate TURCK field devices to Freelance control system. This not only saves on cost, but also makes maintenance more convenient.

“Freelance control system supports flexible communication protocols. It is very easy to make the configuration of network communication.”

Xuanhua Iron & Steel Co., Ltd.



From left: Xuanhua Iron & Steel Co., Ltd. in Zhangjiakou, Hebei province; Blast furnace #2

ABB’s control system solution

In order to ensure a safe and continuous blast furnace production, whole levels of control needed to adopt a redundant configuration. This includes process stations, communication network and power supply. The communication speed is up to 100Mbit/s.

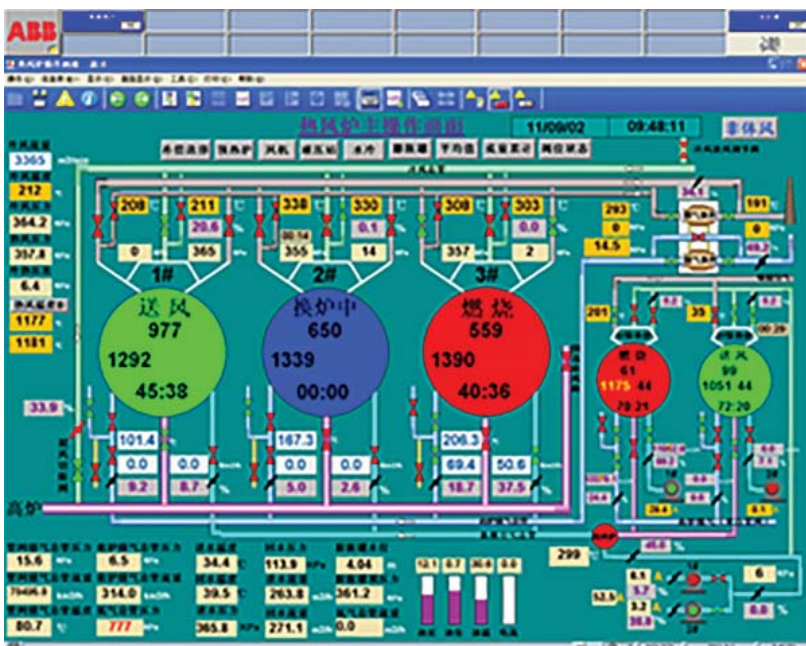
ABB provided a total of 12 pairs of redundant AC 800F controllers to the different process areas, namely the hot blast stove, blast furnace proper, furnace top charging, circulating

water, powder injection, dedusting, top house, under house, transfer station, to name a few. Each process control station is configured into two operator stations and one engineering station for the whole system. The operator station also featured a redundant configuration.

Customer benefits and feedback

“Freelance control system supports flexible communication protocols. It is very easy to make the configuration of network communication, and it could easily to connect to a third-party PLC or field devices. We can realize the seamless communication and compatibility,” Xuanhua’s technical engineer said.

“Now, we can very easily monitor and control the whole blast furnace with Freelance control system. Furthermore, it helps us reduce cost and increase the productivity.”



Hot blast stove

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