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A modern shipping plant for iron ore was developed at the Taicang Wugang Port

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Let the Water Flow

In the port of Taicang, an extensive sprinkler system reduces the dust pollution that is caused by shipping iron ore – Turck's fieldbus modules support the system

China has become the world's export champion. To develop and keep this title, China generated a huge need for resources. This need can only be filled with the help of modern transportation solutions. Therefore, numerous shipment centers for coal, minerals and iron ore, as well as computer terminals, need to be expanded. China will form five large-scale, intensive, modern port groups, such as the Bohai Sea, the Yangtze River Delta and regions at the southeast and southwest coast.

Taicang, located in the south bank of the Yangtze River estuary, is the best intersection for river-and-sea coordinated transport. In order to meet the growing iron ore import demand and to provide efficient iron

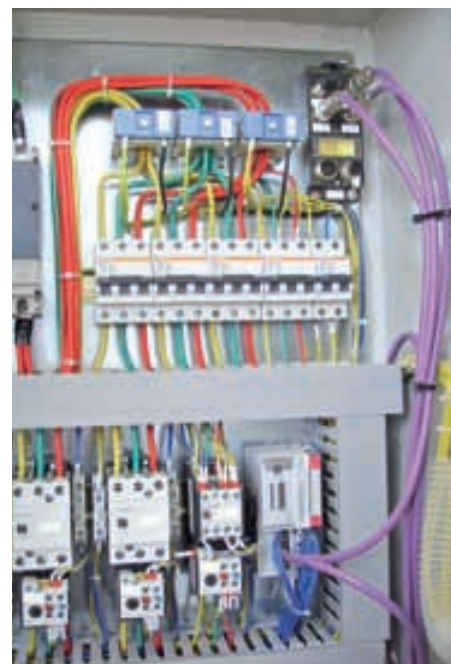
ore transit services in the Yangtze region, the Ningbo Port Group, the Wuhan Iron & Steel Group and the Sino-trans Group established the joint venture of the Taicang Wugang Port Company Limited in 2003. Next to the Ningbo Port, the Taicang Wugang Port will be the second biggest port for the local production of iron and steel. If the port is completed, the annual throughput will be up to 30 million tons.

Sprinkler system against dust

A huge bucket wheel for iron ore works at the bulk material port of the Taicang Wugang Port. A large amount of dust is produced during the shipping pro-



Each sprinkler is equipped with a control cabinet with a BL20 station



BL20 station and Profibus repeater

cess so the operating company decided to install a sprinkler system to reduce the dust impact on the environment. Twenty-one sprinklers on each column are distributed over a length of 800 meters in order to cover the entire area. There are two traditional control methods for the sprinkler system. First, the signals of each sprinkler will be transmitted through cables to a central control unit. This option would allow easy start-up and programming of the system, but laying the countless cables would lead to a substantial increase in cost.

The second method is to equip each sprinkler with a small SPS to achieve control. Although this method could solve the cable problem, a large number of small SPS's would increase the cost and manpower because of the programming required. Also, these local solutions are not ideal for maintenance work. For the system integrator, Shanghai TGE Environment Equipment & Engineering Co. Ltd., in charge of the control system's installation, programming and commissioning, only a fieldbus solution came into consideration. All advantages of a central control can be used without having the disadvantages of a complex wiring. All signals are collected from I/O stations directly at the sprinklers and are forwarded via Profibus to the controllers.

Flexible BL20 system

After comparing different products, the system integrator chose the BL20 Economy distributed I/O system from Turck. With its modular concept, high signal density, small size and low price per channel, Turck's fieldbus solution was the clear choice. "Because of the flexible structure and ability for expansion, the tailored I/O system, BL20, from Turck is quite fit for our distributed system," says Chunyang Zhong, manager of Shanghai TGE Environment Equipment & Engineering Co. Every fieldbus station consists of one gateway and I/O mod-

ules, which are configured for the different required signal types. The signals are forwarded from the gateway to the main controls via Profibus-DP. Because of the large distance within the plant, an additional Profibus-repeater from Turck was used to increase the maximum distance from 1,200 to 2,400 meters.

Turck's I/O-assistant diagnostic software was another reason for the BL20 becoming the product of choice. The FDT/DTM based tool supports the user during design, start-up and maintenance of the network. With the help of the I/O-assistant, each BL20 station can be configured on-site – without having to be connected to the main controls.

Conclusion

The BL20 system from Turck contains the features needed for use in the spacious Taicang Wugang Port. The modular system is flexible and adapts to the requirements of the different stations. The system integrator and users benefit from numerous possibilities to save costs – not only through the reduction of the cables, bridges, terminal blocks and control cabinets, but also through the fast start-up and operation of the I/O network. Thanks to the extensive diagnostics function provided by I/O-assistant, network errors are located and taken care of quickly. ■



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Chunyang Zhong,
Shanghai TGE
Environment
Equipment &
Engineering Co.

▶ Quick read

The Taicang Wugang Port will be the second biggest port for the local production of iron and steel in the Yangtze-Region in China. To reduce the dust impact on the environment that is caused by shipping iron ore, the operating company decided to install a sprinkler system that is controlled by a local SPS. BL20 I/O stations and Profibus-repeaters from Turck guarantee a reliable Profibus communication between the SPS and the sprinklers.