Bluetooth™

PROFIBUS® PROFINET®

SCHILDKNECHT
SMART DATA COMMUNICATION

APPLYING RADIO SYSTEMS IN A HIGHLY AUTOMATED GALVANIZING PLANT

DATAEAGLE MODERNIZES DATA TRANSMISSION

RADIO SYSTEM IN GALVANIZING PLANT

This crane in a galvanizing plant was automated with a DATAEAGLE Classic 3702A.

1

DATAEAGLE Classic 3702A Slave is mounted in the control cabinet at the trolleys.

2

One of three DATAEAGLE Classic 3702A in a control cabinet as Master base station.

APPLICATION

Crane technology for transporting parts within the framework of production processes such as surface treatment of metallic work pieces by galvanization is one of the features of modern automated manufacturing. Cranes are then becoming components in a mostly FIELDBUS-based automation system with e.g. PROFIBUS or PROFINET technology and transport parts across the different processing levels. In this process they are required – like the other system components – to prove high operation reliability which due to moved plant components has led to applying radio systems as a replacement for conductor lines used up to now. In 2011, the company OBO Bettermann established a metal competence centre as a highly integrated production facility; its core element is a plant for hot-dip galvanizing (Scheffer Crane Technology) by applying radio technology of Schildknecht AG in the plant control system.

CHALLENGES

For compliance with quality demands, applying radio technology in galvanization plants is required to meet high requirements with regard to availability, reliability and safety! This requires – in view of complex movement processes – intensive coordination between crane technology and radio technology during planning and constructing the plant in view of local conditions such as impairment of the radio link e.g. because of visual obstructions. Moreover, a comfortable start-up and remote-maintenance options for hardly or non-accessible conveyor components shall be enabled. In this process, control and drive engineering are required the same way as data radio, a field in which Schildknecht AG has been specializing for more than 20 years. A particular feature of this company is the equal status of innovative mechanical engineering and intensive application consultancy in the business model.

SOLUTION

Radio modules of the DATAEAGLE 3000 series of Schildknecht AG have been specifically designed for such applications: Those modules "speak PROFIBUS" and provide for communication in wireless network areas with highest reliability – thanks to their filter function patented by Schildknecht against lost or damaged telegrams. From the central control unit, data is reliably transmitted to the mobile monorail crane travel units every 30 milliseconds via a distance of 50 m. Thereby, their current position indications and driving tasks are continuously exchanged bidirectionally and safely actuated. Since galvanization plants nowadays are still highly automated, highest availability is indispensable. In this process, the Bluetooth technology applied in the DATAEAGLE radio modules has proved particularly interference-proof thanks to the frequency hopping procedure.

RESULT

DATAEAGLE radio modules have proved in operation. Despite restricted visual contact there are no failures which is presented in increased efficiency in production and secured production quality.
Dipl.-Ing. Kurt Kimm, Technical Manager Electronics Scheffer Krantechnik GmbH:
"In crane technology we have been relying for many years on applying fieldbus radio links of Schildknecht".

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