



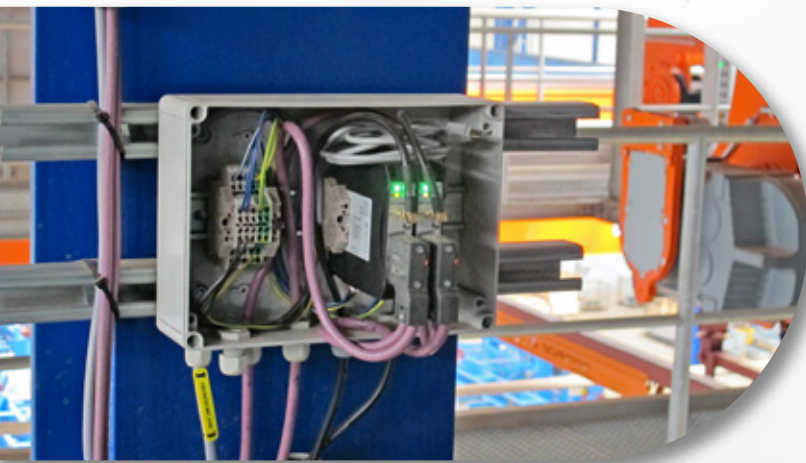
SCHILDKNECHT
SMART DATA COMMUNICATION



RADIO SYSTEMS AND CRANES CLOSELY LINKED
CRANES RELY ON WIRELESS FIELDBUS-LINKS

CRANE INSTALLATION

This crane is automated by use of the radio data transmission system [DATAEAGLE](#). The product family DATAEAGLE 3000 and 4000 for transmission of PROFIBUS and PROFINET is perfect for cranes due to its data pre-processing. PROFIsafe is possible too.

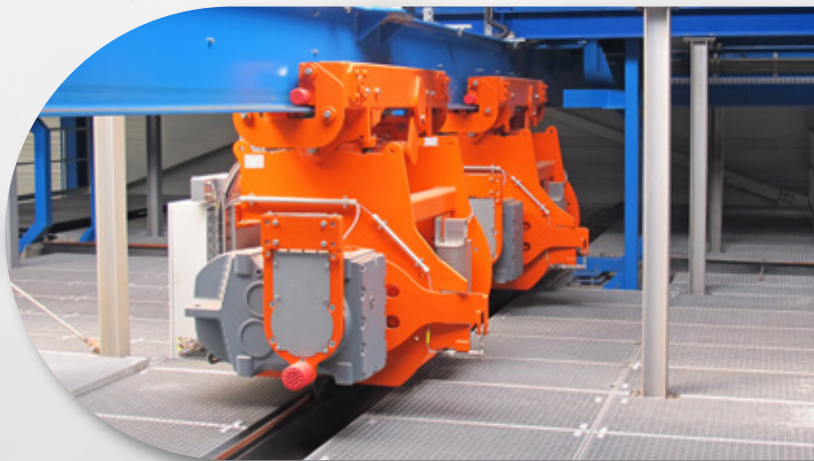


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The [DATAEAGLE Master](#) functions as the base station and is mounted directly beneath the ceiling construction. DATAEAGLE radio systems are available as IP20 for DIN-rail (picture) mounting as well as IP65.

②

The crane trolley receives and sends data via the [DATAEAGLE Slave](#). The maximum range between Master and Slave is 300m using Bluetooth as the radio technology.





APPLICATION

Crane technology has been experiencing a technological boom for years and thereby developed from a pure "lifting gear" to an automatic transport system for load of any kind and weight. Cranes have become an indispensable part of intra-plant material flows and production processes, focusing on metal and construction industry as well as on mechanical engineering and container construction or shipping (container transport) and waste treatment (waste sorting). This development has become possible thanks to the availability of increasingly powerful technologies of drive, communication and particularly radio technology. Amongst others, this has led to a close "application link" of radio systems and crane technology.



CHALLENGES

Economic and operational benefits of crane automation are opposed to highest requirements to availability, reliability and safety in daily operation: crane technology and radio technology are required to cooperate intensively here for ensuring safe lifting, transporting, lowering and putting down of even heaviest load e.g. in workshops or harbour facilities. This requires compliance with strict safety regulations, a challenge for drive and control technology and more particularly for data radio to which [Schildknecht AG](#) in Murr has been committing with a high degree of intensity for 35 years. A particular feature of this company is the equal status of innovative mechanical engineering and intensive application consultancy in the business model.



SOLUTION

Nowadays, fieldbus technology with communication via protocols such as PROFIBUS or PROFINET is the basis of most industrial automation projects. The spatially distributed plant components are linked in this process and connected with a central PLC. This applies analogously to crane technology in which all plant components are required to interact highly accurately and reliably. Particularly sensitive cable links such as conductor lines or trailing cables are running out of space here and in the plant network are replaced with wireless radio links between two or more radio modules. 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. For systems based on PROFINET the radio modules of the [DATAEAGLE 4000](#) series are not available; other modules on the other hand provide for radio links in systems without FIELDBUS. As a radio technology, Schildknecht predominantly applies Bluetooth, last but not least because of the real-time capability and the particularly high availability of this technology thanks to the frequency hopping procedure. For safety reasons, this is of particular importance in crane technology!



RESULT

Innumerable installations, innovative products and a known intensive application support have helped Schildknecht to gain high market acceptance and successful partnerships with manufacturers of modern crane technology. Some of our reference customers are Scheffer, Demag and Terex, which have been successfully applying radio systems in their cranes. "Operation of radio systems in cranes is particularly reliable in automatic mode since the patented filter technology avoids bus errors and thereby standstill of the plant in the event of radio interferences", [Thomas Schildknecht](#), founder and management board of Schildknecht AG.

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