

► Safety on paint lines – Yanfeng Plastic Omnium, Shanghai

Applications

The requirement

The automotive industry represents a very important industrial sector internationally and as such is an essential economic factor. Design and technical features play a key role when buying a car. The paintwork, for example, provides protection against mechanical influences, the damaging effects of the weather and corrosion, thus helping to maintain the vehicle's value. Painting takes place in giant paint lines. These days, each station, from pretreatment to cleaning and from actual painting to drying, is controlled in fully automatic mode – and is partly robot-assisted. Maximum plant availability and cost reduction are the top priority; precision handling and safety are essential.

The solution

An automation system that offers a high level of productivity with maximum safety: that's why **Yanfeng Plastic Omnium** in Shanghai uses the automation system PSS 4000. Yanfeng is one of China's largest suppliers of automotive components and specialises in the development, manufacture and sale of bumpers, tailgates and mudguards. Painting the components is an important part of the process. Robots from the system supplier Shanghai Fanuc Robot Co. Ltd. operate the fully automatic paint lines. The PLC control system PSSuniversal PLC is used to monitor all the sensor technology, which includes seven safety switches PSENcode, for example. These are used to monitor the position of guards and also for general position monitoring. Additional light beam devices within each



safeguard prevent the system from restarting while an operator is still inside. Further light beam devices secure access to the paint line. The PSSuniversal PLC control system installed in this application is fitted with a PROFIBUS-DP interface. This is used to transmit diagnostic data from the plant, for example. PSSuniversal PLC also communicates with the robot controller and so has information about its respective status.

The operator

Yanfeng Plastic Omnium, Shanghai
 www.yf-usa.com

The system integrator

Shanghai Fanuc Robot Co. Ltd.

An overview of the plant

- ▶ Four areas: primer, base coat, clear coat, drying zone
- ▶ In each area: four E-STOPs, two light beam devices, two safety switches
- ▶ Production capacity: 150000 – 200000 units/year



Pilz control and sensor technology in robot-assisted applications.



Fully automatic paint line at Yanfeng Plastic Omnium, Shanghai.



Products used

- ▶ Control system PSSuniversal PLC with PROFIBUS-DP interface
- ▶ Configuration: Program Editor PASmulti
- ▶ Coded safety switch PSENcode

Benefits of the application:

- ▶ Simple communication between the control systems PSSuniversal PLC and the robot controller
- ▶ Reduced costs and simple operation through a single safe sensor PSENcode – for monitoring the position of guards as well as general position monitoring
- ▶ Extensive diagnostic options and status display between robot and PSSuniversal PLC via the PROFIBUS-DP interface
- ▶ More flexible system/architectural structure and simple plant expansion due to the modular structure and the ability to connect up to 64 I/O modules to one head module
- ▶ Free choice of programming tools: complex functions programmed in accordance with EN/IEC 61131 (STL, LD, IL) or graphical configuration
- ▶ Use of a future-proof system and conversion to the latest technology

Webcode 11006

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