



LASER SCANNING IN THE AUTOMATION PROCESS

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Port automation has become increasingly important in recent years. The COVID-19 pandemic showed that supply chains can be sensitively affected and is one challenge port operators are facing today as part of the global supply chain and why the demand toward automated port equipment continues to rise.

Technological solutions like the Internet of Things (IoT), computers, robots, and artificial intelligence (AI) are some of the first things that come to mind when we talk about automation in ports and there is no doubt that they can improve the operations at a container port as well as enhancing the container port equipment. These technologies, correctly implemented, create notable advantages. However, the question remains what do global container businesses gain from adopting technology to automate port operations?

One answer to such a question is to be more independent and thus to automate cranes. These so-called automated yard

cranes (ASC) which could be either rubber tyred gantry cranes (RTG) or rail mounted gantry cranes (RMG) are equipped with state-of-the-art laser measurement systems which will positively affect the container crane business.

LASE A SOLUTION PROVIDER

LASE, a laser measurement system manufacturer and supplier from Germany, has a solution in our product portfolio to help customers with their demands to either equip new cranes or retrofit existing cranes with systems to automate. LASE delivers “the eyes of the machine” through its system called LaseAYC-2 – Automated Yard Crane.

This system is already in use with several port customers worldwide. LASE also offers this solution as an Original Equipment Manufacturer (OEM) system for different cranes manufacturers. This means the system can be directly installed on brand new cranes.

LASEAYC-2 FOR AUTOMATED YARD CRANES

The LASE solution is a measurement system working with two 3D laser scanners, mounted under the trolley of an RMG or RTG as well as a software application package which handles all information and interaction with the cranes Programmable Logic Controller (PLC).

Measured data from the 3D scanners will be handed over to the application which creates a 3D-image of the container yard for pick up and drop off actions and it will also measure railcars and/ or chassis for pick up and drop off of containers.

The LASE measurement application sends results via Ethernet, ProfiBus or ProfiNet interfaces to the crane PLC. The crane PLC can handle the processes data from the LASE system and then manoeuvres the crane with the load to the desired positions.

FUNCTIONALITIES OF LASEAYC-2

By using the LaseAYC-2 system customers can have several functions of operation.

The main functions of the system are automatic pick and drop in the yard,

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automatic pick and drop on the railcars, automatic and semi-automatic pick and drop on road chassis, collision prevention between load and stacks in trolley drive direction, soft-landing and spreader tracking in drop down phase.

Alongside the key functions described above the system also has further optional functionalities available like placement verification on railcars, railcar lifting prevention, double box lifting prevention, indirect container height measurement, train profiling, truck movement detection, container slot surveillance.

BENEFITS OF HAVING AUTOMATED EQUIPMENT/LASE SYSTEMS ON SITE

Some of the benefits companies have by using the LaseAYC-2 systems on RTG or RMG cranes are, for example, faster and plannable availability of automated equipment with a potential for lower resources and operation costs. LaseAYC-2

also ushers in efficiency and productivity in many ways as this technology can help companies automate repetitive tasks that do not require sophisticated one person decision-making. This can result in greater productivity and efficiency. Another benefit is cost reduction and profit boost as increased efficiency and productivity from technology can result in a decrease in operating costs and a corresponding increase in profits.

CONCLUSION

The LaseAYC-2 system has already been deployed to port operators in a number of nations including, but not limited to, Australia, Ireland, Italy, the US and the UK. It has been proven by three crane manufacturers as an OEM part and was also installed on several cranes already in service.

If you as a customer want to unleash the potential of container cranes a LaseAYC-2 system could relieve the burden of manual operations.



ABOUT THE AUTHOR

Lars Mohr is the Sales Director – LASE Industrielle Lasertechnik GmbH and holds a Masters and Bachelors degree in environmental engineering with a major in process engineering and process simulation. He has 20 years of global experience in engineering and sales roles in the energy, mining and port industry. Lars knows what truly drives companies towards technology with a clear, logical mind with a practical approach to problem-solving and a drive to see things through to completion.

ABOUT THE ORGANISATION

Efficient handling and safety in nearly all port operation sites become more important and due to the permanently competitive markets our laser-based products help to enhance the productivity and reducing claim costs. The modular design, plus the use of standard, highest quality components, allows maximum utilisation of our customers ‘existing infrastructure and technology, minimising up-front expenses.

Due to the trust of the most prestigious manufacturers and automation companies in the world, which rely on the innovations and quality of the laser measurement systems by LASE, we are able to offer customised products and system solutions since the beginning. After over 25 years of our existence we can proudly look back to our achieved goals, but nevertheless we also analyse permanent changes and industry needs simultaneously.

Convince yourselves of our broad portfolio of innovative products and solutions for efficient container handling and safety at nearly all kinds of port operations – either at the gate, truck lane, back reach, yard or vessel.

