



SCS⁴

SPREADER CONTROL SYSTEM

A Tradition of Innovation

BROMMA



ALL IS WELL

*With a perfect logistic flow comes peace and quiet
– then it is easy to be terminal manager.*

Your crane spreaders may seem like a minor piece of your terminal's operational puzzle. But they are crucial to the terminal's overall productivity. If spreaders fail, so will your cranes – and soon vessels will begin to line up under increasing frustration.

The harsh operating conditions in a terminal take their toll on spreaders. In fact, up to 60 percent of

crane downtime is due to spreader problems. Using the right spreader and, even more importantly, the right spreader control system and software, you can take control of the efficiency of your operations.

No mechanical design is spared of disturbances and the need for service and maintenance – not even a Bromma spreader. But using our SCS⁴ control



system, you will always know the condition of every spreader in your terminal, at any given moment.

In fact, you are offered the possibility to implement a full-scale predictive maintenance scheme, which allows you to foresee and address many issues before they turn into problems.

SCS⁴ puts you in control of your operations, your maintenance and your costs. And lets you experience that desirable feeling that all is well.

INFORMATION IS POWER

The right spreader information helps you make the right decisions. SCS⁴ makes crucial decision-making information available to operations managers. Statistics and operational data that can be analyzed to continuously improve terminal productivity and profitability.

Spreader productivity depends heavily on fault frequency and duration. Still today, most spreader control systems provide only rudimentary fault information. A flashing LED light, indicating a wide problem area, may be difficult to understand and act upon – even for experienced operators.

In contrast, with SCS⁴ users are provided detailed messages in clear text – in their native language – telling them exactly what to do. This accurate diagnostic data is key to shortening downtime duration and eliminating the need for time-consuming spreader change-outs.

Operational information, such as events, alarms and trend data, is stored in SCS⁴ – even after the spreader has been disconnected. This gives service personnel the opportunity to review and analyze data in order to further improve spreader productivity.

One by one, terminals around the globe are being automated, to a larger or lesser extent. This makes spreader reliability even more important than before. You can rely on Bromma SCS⁴ to ensure the spreader uptime necessary to succeed with your automated operations.

This functionality was first introduced with Bromma SCS³, the previous generation of our control system. With the SCS⁴, functionality has been further improved through e.g. faster response times and better user friendliness.





SEE THE FUTURE

Preventing a problem costs less than fixing it. As maintenance manager, you want to avoid lengthy stoppages at all cost. In fact, it doesn't have to cost a fortune to ensure uptime, since predictive capabilities are integrated in SCS⁴.

Quickly identifying a fault to reduce downtime duration is a key strength of Bromma SCS⁴. But we have taken fault management a step further: allowing operators to see into the future and correcting a fault before it actually occurs.

It may sound like fiction but it is science, based on so-called rule-based artificial intelligence. The technology, developed by Bromma, gives your terminal the opportunity to take a new perspective on maintenance and service – shifting from costly corrective maintenance to smart predictive maintenance.

Building on SCS⁴, Bromma's suite of productivity-enhancing apps, Green Zone™, helps you further

extend the predictive capabilities of spreader maintenance. Features include detecting causes of decelerating performance, viewing downtime risk areas and prioritizing maintenance procedures. Read more about Green Zone™ apps on page 11.

When maintenance personnel are allowed to spend more time improving performance and less correcting faults, new roads to profitability are opened. Accessing both historical data and alerts for potential error sources helps you adapt maintenance procedures to actual events – and keep downtime and decelerating performance on the doorstep.





MOVE MORE, MAKE MORE

The more loads and unloads, the higher the terminal's profitability. Thanks to smart SCS⁴ features, your terminal is offered an opportunity to increase operational efficiency and reduce downtime.

The typical image of a crane operator may be changing and will continue to do so. But whether operators are located in the crane cabin or a distant control room, they want to be in control of their spreader and crane.

A spreader equipped with SCS⁴ gives key personnel in your terminal access to a large number of useful spreader features. These features can help maximize your spreaders' availability and minimize costly unplanned downtime.

Built into the spreader, the visualization monitor displays sensors and valves, the status of field bus interfaces, the control panel for operating

the spreader, and runtime and spreader data. Maintenance personnel can also tune spreader parameters online or revert them to factory settings.

Users are instructed precisely how to ensure uninterrupted spreader operation. Messages such as "Twistlock losing signal; twistlock mechanics need adjustment" and "Twin-latches are close to the margin; sensors need adjustment" help them manage the small things that could otherwise develop into big problems.





A COMPLETE SOFTWARE ECO SYSTEM

SCS⁴ gives you control of terminal productivity by literally putting essential information about your spreader fleet in the palm of your hand.

The information provided by SCS⁴ helps you fix a problem faster as well as predict and prevent problems before they occur. The data is available in real time to operators during operation and stored for later reviewing, e.g. during planned maintenance.

In fact, SCS⁴ is more than a spreader control system. It can be extended to a complete information hub

that lets you optimize terminal operations through seamless integration between spreader and terminal control.

It serves as a platform for a growing, integrated eco system of apps aimed at optimizing terminal efficiency. Building on the intelligence of SCS⁴, Bromma's optional app package Green Zone™ lets you take your container management wherever you want.

Visualization monitor

The visualization monitor shows several operational parameters and data. SCS⁴ comes with a new, more powerful monitor that features improved user-friendliness, more advanced diagnostics and spreader prognostics.

Spreader sensor and valves

All spreader sensors and valves are displayed.

Communications status of field bus interfaces

Advanced communications are at the heart of SCS⁴ spreader control. Communications status of field bus interfaces ensures the secure information flow between SCS⁴, spreader and crane.



Control panel for operating the spreader

Enables the control of various features during operational standstill, for example testing the functionality of telescoping.

Display of runtime and spreader data

Provides detailed information such as events alarms and log data to help maintenance personnel perform more accurate and efficient maintenance.

Online tuning

Operators are allowed to tune spreader parameters online or revert them to factory settings.

GREEN ZONE™

Green Zone™ is an optional app software package, fully supported by SCS⁴, which helps further improve terminal productivity.



FLEET DOCTOR™

Offers continuous monitoring of spreader functionality to detect decelerating performance. Fault indications are translated into instructions for service measures that help restore high spreader performance.



ROADMAP™

The 10 most common faults, which historically have impacted spreader fleet performance most negatively, are presented as a list. This enables terminals to identify risk areas for downtime or decelerating spreader performance.



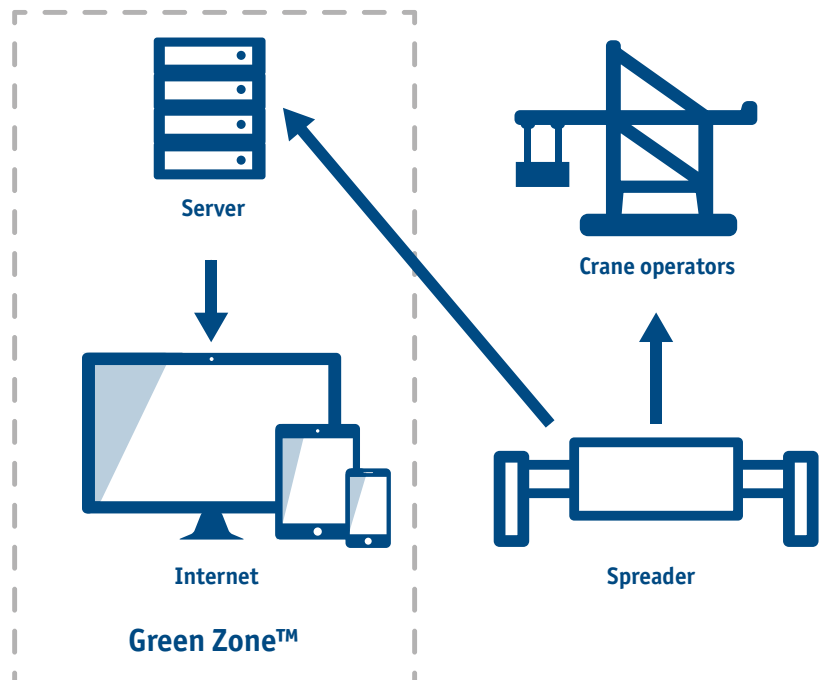
WORK ORDER™

There are always maintenance activities that are more urgent than others. Work Order allows terminals to prioritize activities, providing a living service plan that is adjusted in real time to actual spreader events.

HOW IT WORKS

Green Zone™ extends the reach of the SCS⁴ control system to the world. Spreader data supplied by SCS⁴ is stored in a server linked to the spreader. From there, it is available to authorized users logging in to Green Zone™ using an internet-connected device.

This opens up possibilities to remotely manage a spreader. Terminal managers, operations managers and maintenance managers alike – SCS⁴ in combination with Green Zone™ gives them all access to essential information about the terminal's spreaders – anytime, anywhere using a standard laptop, tablet or smartphone.



SCS⁴ eco system

BROMMA CONQUIP

Box 1133, Malaxgatan 7
SE-164 22 Kista
Sweden

📞 +46 8 620 0900

📠 +46 8 739 3786

✉️ sales@bromma.com

www.bromma.com

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BROMMA