**Product note**

**Anti-sway control program for indoor cranes**

Control sway automatically
A moving load, suspend on a rope from the crane’s trolley, creates a pendulum. Acceleration or deceleration of the load results in a swing, or sway. The ACS800 industrial drive's anti-sway control program calculates and automatically compensates for the sway in both trolley and long travel movements, without the need for external anti-sway sensors or other hardware. With power ratings from 0.5 to 5,600 kW (230 to 690 V), the ACS800 industrial drive with built-in anti-sway crane control provides a solution that saves costs and improves productivity.

Assisting the crane operator
The anti-sway control program creates a mathematical model of the crane's pendulum. It estimates the pendulum's time constant by continually measuring the hoist position and load properties, and factors in the swing velocity and angle.

When the operator changes the speed of the crane’s travel, the drive quickly recalculates the required speed reference to compensate for the crane’s speed change, preventing the load from swaying.

The anti-sway control program is designed for indoor crane use. The sensorless control is not designed to compensate for external variables, such as wind.

Shorter cycle times improve productivity
Because the anti-sway control program calculates and eliminates the load’s sway automatically, the crane operator can shift their full focus on doing their work rather than manually controlling the sway. Loads are moved safely and quickly, at higher speeds, with shorter acceleration and deceleration times.
**Enhance safety and lower operating costs**

The skill of crane operators varies greatly. When trying to manually control a load’s sway, it is possible to cause additional wear and tear by quickly jerking controls. This results in both additional mechanical wear as well as stress to the crane structure itself.

In addition to the mechanical wear, the uncontrolled sway may allow a load to impact with machinery, structures, and anything else in its path. This can cause significant damage to the crane, the load, and its surroundings, adding to the sites operational expenses.

From a safety perspective, a swaying load can present safety risk to people.

**Anti-sway example**

A typical electric overhead travelling (EOT) crane using three ABB industrial drives for movement control: the hoist drive (installed with ABB’s built-in crane control program), the trolley drive and the long travel drive (both installed with ABB’s built-in anti-sway control program).

The anti-sway control program in the trolley and long travel drives prevents the load from swinging. The hoist drive’s crane control program ensures precise lifting and lowering of the loads.

The drives communicate with each other either via a fiber optic connection or by analog or fieldbus communications. This communication is used to share the hook distance and load information.

**Anti-sway control program benefits:**

- Cost effective, built into the drive eliminating the need for external sensors or hardware
- Eliminates need for quick, jerky manual sway control movements, reduces wear and tear, lowering maintenance needs and costs
- Lowers risk of damage to the load, reducing operating expenses
- More accurate and quicker movement of goods, improving productivity
- Lowers risk of accidents caused by uncontrolled sway to personnel
- Improves operator's confidence, less focus on manually controlling sway

For more information contact your local ABB representative or visit:

**www.abb.com/drives**  
**www.abb.com/drivespartners**

ACS800 industrial drives range from 0.55 to 5,800 kW, 230 to 690 V.

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