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AUTOMATION TECHNOLOGY

ARATEC ATC – The Perfect Solution for Automatic and Manually Operated Cranes

Reduced wear.
Extended maintenance intervals.
Easy commissioning.

PSI Technics' ARATEC ATC (Advanced Track Control System) is a straight-run control system for bridge cranes.

The ARATEC ATC ensures that the wheels of a bridge crane are continually centered on the crane rails, thus effectively preventing wheel flange and lateral guide roller wear.

The Challenge

Bridge cranes play a vital role in production and warehouse logistics and are relied upon to transport heavy loads in interim storage or shipping facilities. The continuous day-to-day operation of these cranes, however, puts particular strain on a crane's mechanical components. A bridge crane has to be in safe operating condition at all times, and there is often little to no room for costly maintenance and associated downtimes.

Varying driving forces on either side of the rails, sloping or worn rails or swinging loads can cause the crane to skew or float which, in turn, wears heavily on wheel flanges, guide rollers, and crane rails. Damaged or worn wheels frequently lead to unplanned repairs, long downtimes and high maintenance costs.



Skewing can occur in particular due to load swing, which subjects crane wheels and rails to increased strain and wear.

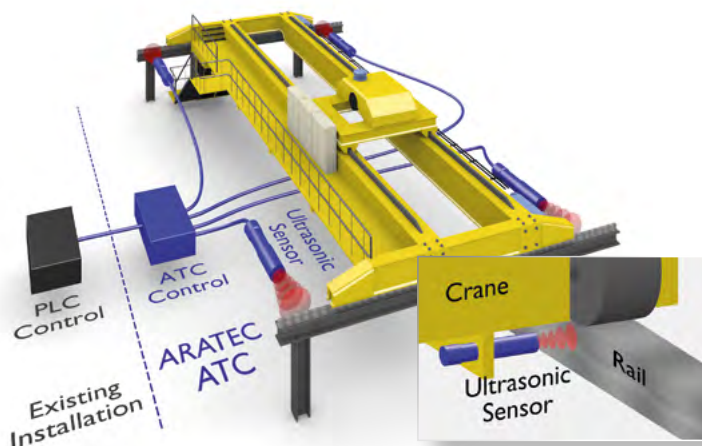
The best optimization approach is to prevent heavy wear on all components that are critical for the crane's operational safety.

How the ARATEC ATC works

The ARATEC ATC controls the drives on both sides of the bridge and ensures that the crane wheels are centrally positioned on the rails. To accomplish this, the ARATEC ATC employs 4 ultrasonic sensors that are permanently affixed to the crane wheel assembly (2 on each side) which measure the distance from the wheel or flange to the center of the rail.

The controller monitors the angle and float of the crane and based on this information a speed offset value is calculated and any required velocity correction is sent to the right or left side drive to ensure the crane wheels remain centered on the rails. Thus, if the wheels or rollers deviate from the rail's centerline the ARATEC ATC corrects the skew or float while the crane is moving. Since the wheel positions on both sides of the rails are corrected, the crane's traveling speed remains unaffected.

The ARATEC ATC has no effect on existing or additional crane controls, such as anti-collision, automated or semi-automated positioning, or sway control, allowing simultaneous use of these features, where required.



Four ultrasonic distance sensors record the current position of the wheels at their point of contact. The ARATEC ATC uses this data to calculate both the angle and the position of the crane bridge.



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The ARATEC ATC ensures smooth crane operation while reducing maintenance costs

ARATEC ATC – System Components

The ARATEC ATC consists of a compact controller that fits into any crane-mounted electrical cabinet. Four ultrasonic distance sensors are installed on the front and back of the bridge on both sides of the crane rails and are aligned to the rail flanks. The measured distance values are transmitted via a 4-20 mA interface and are processed by the controller.

To correct for skew or for the crane position on the rails, drives on both sides of the crane bridge need to be controlled separately. The ARATEC ATC controller transmits the corrections via any modern industry standard interface to the drive controller to correct the skew or float. Both AC and DC drives are supported by the ARATEC ATC.

ADVANTAGES OF THE ARATEC ATC AT A GLANCE:

- >> Extremely accurate wheel position control (+/- 5 mm from the center of the rails)
- >> A skew or float analysis with the ATC Analyzer can be performed prior to system installation
- >> Continuous crane position and angle measurements ensure closed-loop control
- >> The ARATEC ATC is configured and operated via an easy-to-use web interface
- >> Easy retrofitting for systems with closed-loop drive control

Your benefits:

- >> Significantly reduced wear of critical crane components
- >> Extended maintenance intervals
- >> Reduced downtimes
- >> Increased throughput
- >> Increased planning reliability
- >> Extends the life of the crane, rails and wheels



The ARATEC ATC is a worthy investment – even for older cranes and cranes with long spans. Contact us to learn more.

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Just scan the code to gain an information edge.