

CASE STUDY

Robust Radar-Based Distance Control for Paving Automation

Industry

Construction

Application

Distance control / collision avoidance

Product

ABM Non-Contact Radar Level Sensor



In paving operations, precise distance control between the material transfer vehicle (MTV) and the paver is critical to maintain alignment of the conveyor over the hopper. Misalignment can result in material spillage, uneven hopper filling, and paving defects. An equipment manufacturer sought a robust sensor that could operate reliably in the demanding environment of hot-mix asphalt paving.

Challenge

Due to the challenging environment, finding a suitable distance sensor was difficult. Laser-based distance sensors were tested to manage spacing, however high temperature and dust caused interference, leading to unreliable readings and system faults. The laser sensors also required regular cleaning and recalibration, increasing maintenance.

Solution

After rigorous testing, ABM's rugged non-contact radar level sensor was selected and integrated into the MTV's rear control system. The radar provides continuous distance measurement to the paver, unaffected by heat, dust, or vibration.

- **Environmental Resilience:** Immune to heat, dust, and condensation
- **Maintenance-Free:** No manual lens cleaning or compressed air cleaning required
- **High Reliability:** Stable output on noisy, vibration-heavy mobile equipment
- **Control System Compatibility:** Easily interfaces with the machine control system
- **Robust Design:** IP68-rated housing, suitable for outdoor environments and washdowns

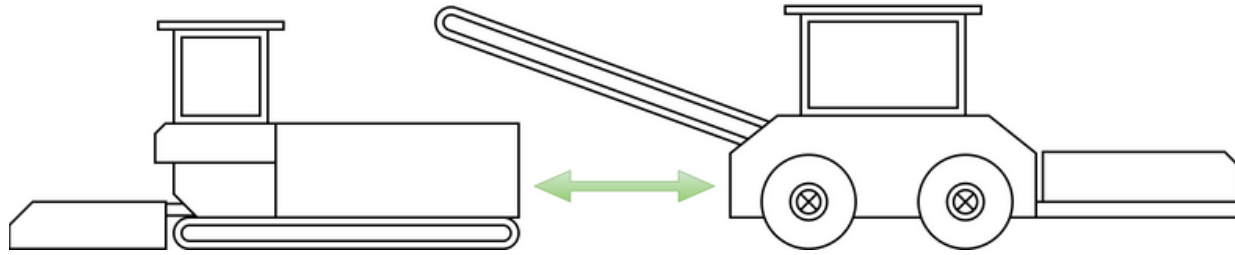


Figure 1: Continuous distance measurement between material transfer vehicle and paving machine.

Results

After replacing the laser-based system with ABM's radar, improved stability in the paving control logic, reduced system faults, and elimination of conveyor alignment errors were reported. The radar has operated through multiple paving seasons without sensor-related downtime.

Conclusion

For automation and control systems in construction machinery, ABM's non-contact radar offers a field-proven solution. Its resistance to environmental interference and maintenance-free operation make it well-suited for various spacing, alignment, and distance applications in the construction industry.

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