

Application Brief:

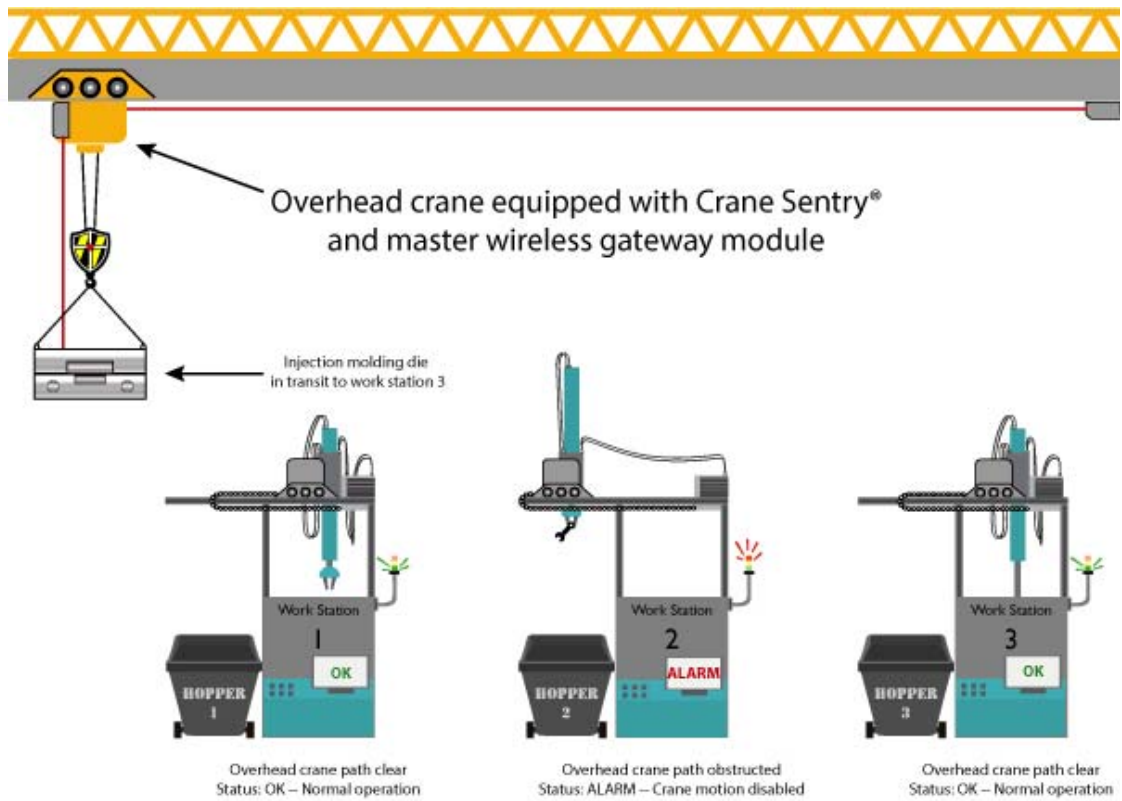
INJECTION MOLDING FACILITY COLLISION MONITORING

INDUSTRY: MATERIALS HANDLING

APPLICATION: INJECTION MOLDING FACILITY CRANE COLLISION MONITORING

SUMMARY: Consider the potential safety concerns, downtime and costs faced when an overhead crane, such as the cranes that handle die changes at an injection molding facility, collides with equipment on the production floor. Many of these facilities have low overhead clearance, often have many “cells,” or clusters, of workstations equipped with costly load/unload robots packed as efficiently as possible in the available space, and each cell is monitored by a single operator. Such was the scenario faced at a plastic injection molding facility in Georgia, where Laser-View Technologies helped solve this very problem with the right combination of materials handling expertise, a Dimetix laser distance sensor, a Crane Sentry® controller, and a master wireless communication gateway with multiple remote interfaces.

Overview

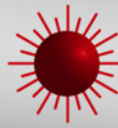


Work Stations equipped with wireless remote interface modules



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Challenge

It's not difficult to imagine what could happen if an object on an overhead crane runway, such as a robotic arm that normally remains below the level of the bridge crane hook or load, suddenly changed elevation into the path of an oncoming crane. A plastic injection molding facility in Georgia faced this very scenario, and decided the best approach would be to prevent any potential collision from ever happening. The physical layout of the facility and distances separating four injection molding machine work centers, however, required the use of a wireless solution that had to be capable of preventing an overhead bridge crane from entering the work center zones while an automated cast removal robotic arm was elevated. Because the crane needed to have access to any particular work center zone to change out the molding machine die as necessary, the solution also needed to warn the machine work center when the crane bridge approached and entered the work center zone to prevent unintentional activation of the robotic arm.



Solution

Laser-View Technologies provided a solution that included a Dimetix laser distance sensor, a Crane Sentry[®] controller equipped with a master wireless gateway module to monitor, process and relay input signals from four remote interface modules, each equipped with a wireless radio, mounted at each machine work center. In this application, the Dimetix laser sensor was mounted near the Crane Sentry controller on the crane bridge and aimed at a flat target plate on the wall. The master wireless I/O module mounted on the Crane Sentry communicated with the remote interface modules, which relayed the digital output signal provided by the customer when the robot arm was raised, and received/relayed the Crane Sentry input signal when the crane approached any of the machine center zones.

Results

As a result, the customer was able to prevent the bridge crane from entering the machine zone while the automated cast removal robotic arm was raised, and yet was able to safely permit overhead crane entry into machine zones as necessary when the robotic arm was lowered.

Key Application Notes

- Multiple communications options
- Simple installation, low maintenance
- Color touchscreen data entry & display
- Teach or manually enter set points
- Six configurable relay outputs
- Wireless interface module

For more information on the Crane Sentry family of laser distance sensor-based overhead crane position and collision monitoring systems, please visit our Website at www.laser-view.com, call 610-497-8910, or email us at info@laser-view.com.