

Container Crane Load Monitoring System Retrofit



Application

The maintenance manager at a major shipping port wanted to retrofit the load monitoring systems on their existing container cranes. The OEM equipment was not functioning properly and there was no service/support available. Simplicity and reliability were the key desired attributes along with local service and support.

Solution

A variety of strain gage sensor designs and multiple sensor locations can be utilized to monitor the loads on container cranes. Typical sensor designs include load pins to measure the load displaced on sheaves or wire rope dead-ends, compression load cells under sheave assemblies, and clamp-on wire rope load sensors. MSI designs and/or provides application specific sensors that accurately measure the load.

In this case, load sensors were installed on the boom tip of the container crane to sense the load through the sheave. The load cell outputs were hardwired to a non-RF, MSI-9000 CellScale that was mounted in the machine house. Optional 4-20mA outputs on the CellScale were utilized to interface with the container crane's PLC control system, and the standard MSI-9000 CellScale set points were programmed to trip safety interlocks for eccentric / unbalanced loads, overload and slack line conditions.

Features and Benefits

The CellScale easily integrated with the existing control system in the machine house. Using the set point relay outputs on the CellScale to trip the safety interlocks provided a quicker reaction time that minimized potential damage and improved

crane safety. This simple installation proved very reliable for the port. MSI's Authorized Distribution Network provided local service and support.

An alternate solution is to use the wireless RF communication from the CellScale (mounted on the boom tip adjacent to the load cells) to a receiving modem in the machine house. Optional 4-20mA and set point outputs from the RF modem can be wired to the crane control system in the same manner as the non-RF solution. The key benefit of wireless communication is the freeing of conductors in the festoon.

Contact MSI today for more information on CellScale Network Solutions and/or to arrange an application review and proposal.