

Hong Kong Mass Transit Railway Moves People Efficiently by Predicting Equipment Issues

RESULTS

- Predictive maintenance through edge analytics
- Efficient data usage through real-time alerts
- Reduced personnel time by ten hours per week by not manually collecting data



APPLICATION

Collection and analysis of vibration data related to each escalator motor drive.

CUSTOMER

Connecting all corners of the city, the MTR Corporation operates nine commuter rail lines serving Hong Kong, Kowloon, and the New Territories as well as Light Rail and MTR Bus services in the Northwest New Territories. In addition, the MTR Corporation operates the Airport Express to Hong Kong International Airport and Asia World-Expo.

CHALLENGE

Travelers across the MTR system rely on escalators to move efficiently and safely through stations. Out-of-service escalators put accessibility, quick mobility, and smooth operation at risk. For 20 years, Hong Kong's MTR monitored escalator health by gathering vibration data using Emerson's AMS 2140 Machinery Health Analyzer. They collected the vibration data in Emerson's AMS Machinery Manager software, which assisted with accurate and system-wide health assessment.

Using the AMS 2140 for manual periodic route collection provided valuable data, but with the increasing number of new metro stations, the MTR sought a more efficient method to gather the data and monitor equipment health. To better utilize the time required for their engineers to go to each escalator to collect data which required quite some hours for each personnel per week. In addition, it was recognized that some alerts and important vibration information could be missed by using the traditional route-based method.

“We had been monitoring escalator health successfully with traditional route-based methods, but our growing system meant that offline analysis would become less and less cost effective.”

Maintenance Manager

SOLUTION

The maintenance team at Hong Kong’s MTR started looking for an automated, online solution to help them collect and analyze the data from equipment across the system. They invited Emerson to continue to provide successful vibration monitoring solutions.

Together, MTR and Emerson designed a solution whereby each escalator has accelerometers that monitor the motor and gearbox bearings. New escalators also have an AMS Asset Monitor to collect and analyze data.

The AMS Asset Monitors are connected to the network through which engineers can access all vibration data via the IP address. Embedded edge analytics technology with auto analytics saves personnel time — and company costs — by alerting users to the most common faults and helping them analyze all the collected data from each station. The software notifies the user of issues only when the vibration level reaches the pre-define limit. Through this solution, they can prioritize and focus on the high-priority equipment.

In addition, the AMS Asset Monitors are connected to the local control room via Ethernet. Engineers can view the Asset Monitor data remotely from the local control room and from the engineering center through their internal network. If necessary, engineers can use the AMS 2140 for further investigation.

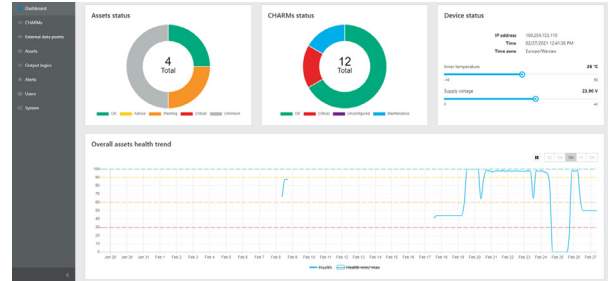
For more information, go to:

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“We have found that online vibration monitoring is a better option for MTR in terms of cost, safety, human resource allocation, and time management.”

Plant Manager



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