

Success story

Industry: Power & Energy

**PLC
+ HMI**
ALL IN ONE™

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Tufan Aksu

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Need a system for both control and monitoring? An All-in-One PLC+HMI offers a single solution for both problems

Summary:

Controlling the water flow is critical to the successful operation of a hydroelectric dam. Kone Cranes, an international company that designs and build cranes, was tasked with the challenge of finding a control system that could control the speed of the dam flaps based on their position, measure water

stability and load on the flaps, trigger alarms to shut of the system in case the flaps were overloaded, as well as tracking and displaying all that information on an HMI panel. Kone implemented an all-in-one PLC+HMI from Unitronics for a compact, easy to use solution.

Kone Cranes is an international company that manufactures and designs cranes and solutions for a range of industries. One of these industries is the hydroelectric sector; Hydro-power plants generate electricity by running water through from a reservoir through turbines. Kone Crane offers cranes for these power plants' operation, maintenance and work shop needs.

One of the hydroelectric plants that Kone Crane worked with is the newly constructed Artvin Dam on the Çoruh River in Turkey. Kone installed a crane system to control the water flaps. There are four water discharge flaps for the plant's two turbines; the flaps need to move at different speeds depending on their position relative to the water. Before they reach the water, they are working idly and can move very quickly, but once the flaps reach the water they need to move slowly and precisely. While the flaps are submerged, the system checks for stability; if the water isn't stable the flaps must remain motionless. The flaps are critical for controlling the water level for the plant, so highly accurate automation was a necessity.

Kone Crane implemented a Unitronics Vision350 PLC+HMI units on their custom crane system for superior control. They used encoder inputs to achieve highly accurate position control. Kone also used a load cell I/O module to check that the flaps are within their nominal load, which was vital for safety checks. If a flap is overloaded, an alarm is triggered and the system stops moving. All on these elements—the flap position, current load, alarms and other relevant data—are displayed on the built in HMI panel for easy operation.

The all-in-one design on the Vision350 PLC+HMI was a huge advantage for Kone Crane as it enabled them to provide a compact, easy to use solution. Additionally, the Vision350 is easy to program thanks to the single-environment software, Visilogic, and the support of their local Unitronics distributor, Yorum Otomasyon. Tufan Aksu explains, “one of the most important parts of our experience is the flexible programming offered by Unitronics software. Instead of learning a software to solve problems, you focus on the problem itself thanks to the opportunities supplied by user friendly programming.”

