

Application Brief:

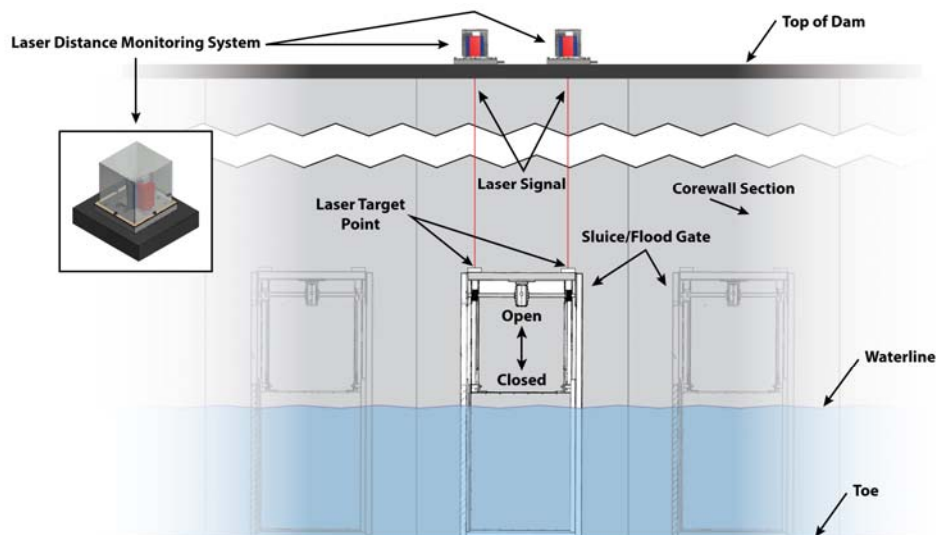
Hydropower Station/Reservoir

MEASURING FLOOD GATE HEIGHT

INDUSTRY: HYDRODYNAMIC POWER STATION / RESERVOIR

APPLICATION: MEASURING FLOOD GATE HEIGHT

SUMMARY: The ability to reliably and accurately monitor flood gate height remotely remains an ongoing challenge for hydropower and reservoir flood gate operators. Dimetix laser distance sensors can be used to remotely monitor sluice and flood gate position, minimizing the need for visual verification in remote locations. Dimetix lasers offer several methods of communicating to control systems commonly used in dam



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Overview

Challenge

The ability to reliably and accurately monitor flood gate height at often remote and difficult to access locations remains an ongoing challenge for hydropower and reservoir flood gate operators. Dimetix laser distance sensors can be used to remotely mon-

itor sluice and flood gate position, minimizing the need for visual verification in remote locations. Dimetix lasers offer several methods of communicating to control systems commonly used in dam and hydropower applications.

Solution

In this implementation 20 Dimetix FLS-C laser sensors measure the distance to the top of the flood gates. Flood gate heights are tied directly into the reservoir's monitoring system to display position while raising or lowering the gates. As shown in the accompanying illustration and inset, a Dimetix laser housed in a custom stainless steel enclosure measures through a hole bored into the top of the dam to the steel surface of the flood gate 50 feet below. In instances where direct measurement of the type shown here is not possible, indirect measurement of a mechanical part (for example, a positioning arm or gate screw) that moves in unison with the gate can often be used as a reference for gate position.



KEY APPLICATION NOTES:

- Non-contact visible eye-safe laser measurement
- Maintenance free application — no moving parts to wear or string cables to break
- Measurements can be acquired by a PLC or PC
- Networkable — possible to monitor multiple structures and create a common, centralized system for remotely monitoring an entire network
- Protective enclosure helps address maintenance issues and account for exposure to weather, dust, airborne particles, and other environmental factors
- Economical, rugged, and compact package

Technology

Dimetix laser distance sensors operate on a principle called phase shift. The laser signal is reflected directly back to the device. This technique provides high accuracy at a significantly lower cost than traditional laser triangulation methods and is generally more accurate than simple time of flight methods. Since the transmit and receive signals

come back straight to the device, the laser can be mounted in tight spaces, making retrofits simpler. The device is also capable of measuring with 1.5 mm accuracy, even up to 500m. Distances over 65m usually require a special reflective plate affixed to the target.

Please [contact](#) Dimetix USA today to discuss your next application.

