

Measuring flood gate height

Industries: Geodesy / Construction
Application type: Position measurement / Monitoring

Description

The ability to reliably and accurately monitor flood gate height at often remote and difficult-to-access locations remains an ongoing challenge for hydro power 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 and hydro power applications.



Fig 1: Flood gate height

In this implementation, 20 Dimetix 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 figure 1 and inset, a Dimetix Laser, housed in a customized 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 positioning.

Customer advantage

- Easy installation thanks to visible laser beam
- Easy configuration thanks to the free software
- Operation in the largest temperature range (-40°C to +60°C) possible
- Measuring ranges up to 100 m on natural surfaces
- Measuring ranges up to 500 m on reflective foil
- Accuracy $\pm 1\text{mm}$
- Repeatability $\pm 0.3\text{ mm}$
- Maintenance-free operation



Dimetix Sensors – the solution for applications with high precision requirements

Thanks to the clearly arranged product portfolio the evaluation of a suitable Dimetix distance laser sensor is simple and uncomplicated.

Dimetix sensors offer numerous features, which are integrated in each and every device as standard, including, among others, various interfaces like SSI, RS-422/485, RS-232 and 2 digital outputs.

Optionally, the Industrial Ethernet interfaces PROFINET, EtherNET/IP and EtherCAT are also available. Furthermore, all devices are IP65-protected and impress with a weight of less than 500 grams!

Particularly noteworthy, however, is the accurate measurement of 1 millimeter over distances of up to 500 meters, even under the most extreme conditions. This is possible with the sensors of the types DPE, DEN and DEH.

No less interesting are sensors of types DAE, DAN and DBN. Preferably, they can be used for projects which do not require a range over 500 meters or are cost-sensitive.

| | DPE-10-500 | DPE-30-500 | DEN-10-500 | DEH-30-500 |
|--|-------------------|-------------------|-------------------|-------------------|
| PARTNUMBER | 500630 | 500636 | 500637 | 500638 |
| SPECIFICATION | | | | |
| Typical accuracy $\cong \pm 2\sigma$ | ± 1 mm | ± 3 mm | ± 1 mm | ± 3 mm |
| Mensurierung range on natural surfaces | 0.05...~100 m | 0.05...~100 m | 0.05...~100 m | 0.05...~100 m |
| Measuring range on reflective foil | ~0.5...500 m | ~0.5...500 m | ~0.5...500 m | ~0.5...500 m |
| Max. measuring rate | 250 Hz | 250 Hz | 50 Hz | 50 Hz |
| Operating temperature | -40...+60°C | -40...+60°C | -10...+50°C | -10... +60°C |

| | DAE-10-050 | DAN-10-150 | DAN-30-150 | DBN-50-050 |
|--|-------------------|-------------------|-------------------|-------------------|
| PARTNUMBER | 500633 | 500632 | 500634 | 500635 |
| SPECIFICATION | | | | |
| Typical accuracy $\cong \pm 2\sigma$ | ± 1 mm | ± 1 mm | ± 3 mm | ± 5 mm |
| Mensurierung range on natural surfaces | 0.05...~50 m | 0.05...~100 m | 0.05...~100 m | 0.05...~50m |
| Measuring range on reflective foil | ~40...50 m | ~40...150 m | ~40...150 m | |
| Max. measuring rate | 50 Hz | 50 Hz | 50 Hz | 10 Hz |
| Operating temperature | -40...+60°C | -10...+50°C | -10...+50°C | -10...+50°C |

