

HYDRO/STRUCTURAL MONITORING OVERVIEW

HYDROPOWER/FLOOD CONTROL

INDUSTRY: HYDRODYNAMIC POWER STATION/FLOOD CONTROL

APPLICATION: FLOOD GATE POSITION MONITORING

SUMMARY: Reliably and accurately monitoring flood gate height remains an ongoing challenge for hydropower and reservoir flood gate operators. In this example, 20 Dimetix FLS-C laser distance sensors were installed to measure flood gate positions and tied directly into the reservoir's monitoring system. Many practical and regulatory considerations support minimizing visual inspection in remote locations, and clear advantages are provided by class II eye safe Dimetix lasers. The IP65 rated lasers are durable enough to withstand harsh environments and temperature extremes and offer configurable data outputs along with several methods of interfacing with commonly used monitoring and control systems.



BRIDGE STRUCTURAL MONITORING

INDUSTRY: ENGINEERING/CONSTRUCTION

APPLICATION: STRUCTURAL MONITORING

SUMMARY: DIMETIX USA helped make history in 2010 by collaborating with Applied Geomechanics, Inc. to develop a system to monitor the lift and placement of steel bridge truss sections on the Huey P. Long Bridge over the Mississippi River in New Orleans. The project involved transportation by river barge, lifting, and placement of the pre-assembled bridge truss spans to reduce stress on the bridge and minimize interruption of traffic. Ten DLS-C15 laser distance sensors were lifted aboard the 2,700 ton trusses and were used in conjunction with specially fabricated targets and software developed to monitor beam deflection during the day long lift.



KEY NOTES

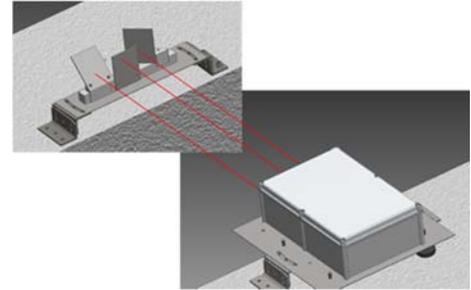
- ▶ Class II eye-safe, visible laser
- ▶ Non-contact, maintenance free measurement—no moving parts or cables to break
- ▶ Configurable data outputs and networkable—allows multiple structure monitoring
- ▶ Measurements can be acquired by a PLC or PC
- ▶ Economical, compact, and rugged IP65-rated package

MULTI-SENSOR/MULTI AXIS STRUCTURAL MONITORING

INDUSTRY: ENGINEERING/CONSTRUCTION

APPLICATION: STRUCTURAL MONITORING

SUMMARY: A bridge in Western PA needed to have two piers monitored on three axes for movement under load over a long term study. The distance between piers was approximately 60 feet. Three Dimetix FLS-C10 laser distance sensors were mounted inside a sealed windowed enclosure, each with an independent two axis adjustment. Three target plates were mounted on a common rail. By having one target plate perpendicular (X axis), and the other two at 45 degree angles over two axes (Y and Z axes), all three axes of movement can be monitored. The engineering firm responsible for the project tied both sets of laser sensors into a Campbell scientific remote data monitoring system. The lasers were connected and daisy chained via RS422 serial communications protocol. The integrated system continues to successfully provide a means of remotely monitoring movement of the piers under load on three separate axes.



DIMETIX USA provides laser distance sensors and accessories, laser-sensor based turnkey solutions, and technological expertise for a wide range of industrial measurement and control applications:

- ▶ **Founded:** 2007
- ▶ **Location:** Chester Springs, PA USA
- ▶ **Organizational functions:**
 - Executive/administrative
 - Engineering/R&D/consulting
 - Marketing/sales/distribution
- ▶ **Distribution:** National

Key laser specifications

- ▶ 0.05–500 m range
- ▶ 0.1 mm resolution
- ▶ Up to 1.0 mm accuracy
- ▶ Digital/analog/serial outputs
- ▶ On board data processing
- ▶ Class II eye-safe laser
- ▶ IP 65 protection class

APPLICATION CATEGORIES



Hydro industry
Floodgate position



Engineering
Structural monitoring



Key benefits

- ▶ Indoor/outdoor operation
- ▶ Complete unit in one housing
- ▶ Heater option available
- ▶ Economical and rugged
- ▶ No moving parts
- ▶ Non-contact measurement
- ▶ Natural surface targets

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