

**STRUCTURAL HEALTH MONITORING**

**Industry:** Geodesy / Construction  
**Application type:** Monitoring

**Brief description**



*Pic 1: Commercial/Residential development*

A civil engineering company had a unique request: to develop a new system for structural health monitoring. This was used to measure sub-millimeter displacements in 3 axis. They wanted to develop new towers in a busy sports complex, only a few feet away from three existing bridge piers. The developer needed to ensure no shift of the existing bridge structure occurred during the excavation and construction periods. The owner of the structure wanted to ensure a high precision measurement system was in place prior to excavation to detect any anomalies during the excavation and construction period.

They combined 3 heated Dimetix laser sensors and a specialized, high precision 2-dimensional laser position target detector. The IP65 rated laser sensors were equipped with heater units to

withstand temperature variations and harsh external conditions, and measured transversal displacement from the bridge piers to the sports arena while the detectors measured transversal and vertical displacement.

The systems were deployed in July 2014 and have been collecting readings 24 hours a day, 7 days a week ever since. Careful data collection and monitoring have allowed the sports complex to remain operational throughout excavation and construction period, adjacent buildings and infrastructure were protected against damage in a high density construction area.



*Pic 2: Construction site*

**Customers advantages**

- Maintenance free application
- Easy alignment thanks to the visible laser beam
- Rugged aluminum housing suitable for harsh industry environment



## Products used

### FLS-C series

The FLS-C distance measuring device measures absolute distances up to 500 meters on reflective foil without contact. Due to most innovative laser technology the FLS-C has a unique accuracy of  $\pm 1.0$  mm. A further advantage of the FLS-C is the quick determination of the positions of moving objects.

The FLS-C is an optical distance measuring device. It measures, maintenance-free, distances up to 65m on natural surfaces. It determines positions of objects that are difficult to access or may have very high surface temperatures. Just as easily, it accurately measures distances in hazardous environments.

The FLS-C is designed to be suitable for both, heavy industrial and outdoor applications. It is constructed of a solid metal case and provides class IP65 environmental protection. **It represents a cost efficient solution even at extreme environment temperatures as low as  $-40^{\circ}$  C.** Furthermore, various features make it flexible for multiple applications in numerous industries such as automotive, paper, metal and textile.

### Specification

- Measuring range 0.05 up to 500m
- Accuracy  $\pm 1.0$  mm
- Repeatability  $\pm 0.3$  mm
- Extended operating temperature
- Solid metal case IP65
- Supply voltage



For new projects we recommend our **D-Series**. Further information can be found [here](#).

For more information please contact us on [application@dimetix.com](mailto:application@dimetix.com)

