

Monitoring of a Highway Bridge in Vienna

Industries: Geodesy and Construction
Application type: Monitoring

Description

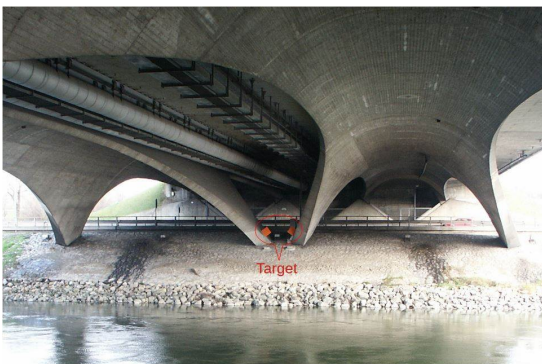


Fig 1: Distance measurement using Dimetix reflective plate as target

Aplica Advanced Solutions GmbH, based in Vienna, specializes in monitoring and supports its customers worldwide in securing bridges, from construction monitoring to ongoing maintenance. For several years, Aplica has successfully utilized Dimetix Laser Distance Sensors in its projects.

For monitoring of an aging section of the Southeast Tangent Highway (A23) in Vienna, built in 1970, the focus was on the measurement accuracy of the laser distance sensors. As part of the reconstruction of the A23, the two bridges were dismantled and rebuilt. Due to the restructuring and the daily load of 180,000 vehicles, there was serious concern that the bridge supports might shift during reconstruction or even cause the bridges to collapse.

To address this challenge, Dimetix Laser Distance Sensors were deployed to monitor the stability of the bridges. During the removal of the pavement, the sensors were strategically positioned to ensure the bridges remained stable throughout the reconstruction process. The precise distance measurements provided by Dimetix Sensors helped detect potential shifts or structural changes at an early stage.

Dimetix Laser Distance Sensors proved to be critical tools in ensuring the integrity of the bridges by enabling continuous stability monitoring during reconstruction and under daily traffic loads.

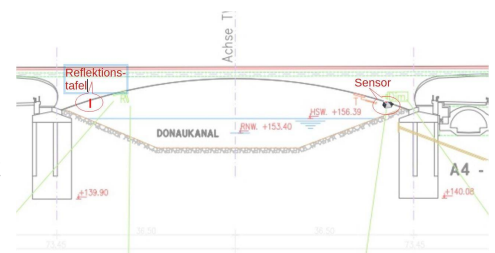


Fig 2: Technical drawing with positioning of the Dimetix sensors

Benefits for the Customer

- **Easy installation** thanks to a visible laser beam
- **Accurate measurements** with a precision of ± 1 mm
- **Precise repeatability** of ± 0.3 mm
- **Maintenance-free** operation
- **Flexible applications** due to various integrated interfaces
- **No distance drift** with temperature fluctuations
- **Small laser spot size:** only 55 x 30 mm at 100 meters
- **Operable in a wide temperature range** (-40 to +60°C)



DIMETIX APPLICATION EXAMPLE

AE-0703

Dimetix Sensors – the solution for applications with high precision requirements

Thanks to the clearly arranged product portfolio the evaluation of a suitable Dimetix Laser Distance 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	100 Hz	100 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	100 Hz	100 Hz	100 Hz	10 Hz
Operating temperature	-40...+60°C	-10...+50°C	-10...+50°C	-10...+50°C

