

**Bridge Monitoring in Thailand**

**Industries:** Geodesy and Construction  
**Application type:** Monitoring

**Description**

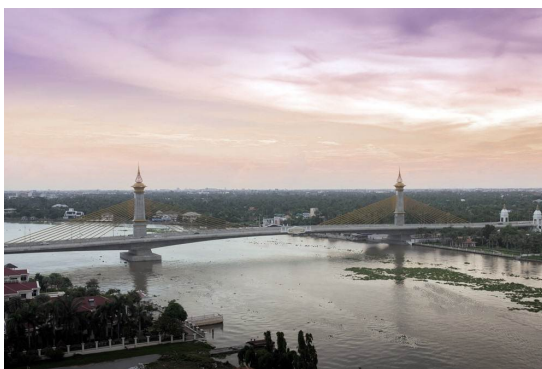


Fig 1: Chao Phraya River Bridge

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.

In a specific application in Thailand, a Dimetix Laser Distance Sensor is used to measure the distance between the pylon and the center of the bridge, capturing any changes. With a span of 200 meters between the pylons, close monitoring of the bridge's static load is essential. The Dimetix Sensor is installed at the upper section of the bridge pylon, targeting the center of the bridge, where a reflective foil is affixed.

The sensor accurately measures distances of over 100 meters with a precision of  $\pm 1$  mm without any issues.

This precise measurement enables the detection of even minimal changes under varying loads. By identifying such changes early, appropriate measures can be taken to ensure the bridge's safety. A technical drawing (Figure 2) illustrates the sensor's placement on the pylon and its focus on the reflective foil surface.

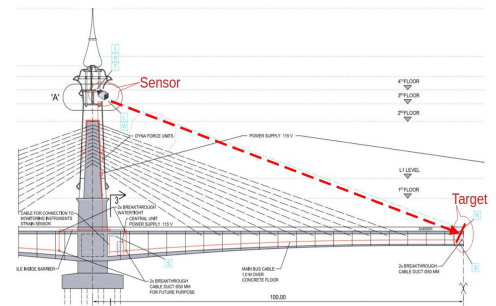


Fig 2: Technical drawing

This application demonstrates how Dimetix Laser Distance Sensors contribute to improved monitoring and structural integrity of bridges and similar constructions worldwide.

**Benefits for the Customer**

- **Easy installation** thanks to a visible laser beam
- **High measurement accuracy** with a precision of  $\pm 1$  mm
- **Excellent repeatability** of  $\pm 0.3$  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-0704**

**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.

	<b>DPE-10-500</b>	<b>DPE-30-500</b>	<b>DEN-10-500</b>	<b>DEH-30-500</b>
<b>PARTNUMBER</b>	500630	500636	500637	500638
<b>SPECIFICATION</b>				
Typical accuracy $\cong \pm 2\sigma$	$\pm 1$ mm	$\pm 3$ mm	$\pm 1$ mm	$\pm 3$ 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

	<b>DAE-10-050</b>	<b>DAN-10-150</b>	<b>DAN-30-150</b>	<b>DBN-50-050</b>
<b>PARTNUMBER</b>	500633	500632	500634	500635
<b>SPECIFICATION</b>				
Typical accuracy $\cong \pm 2\sigma$	$\pm 1$ mm	$\pm 1$ mm	$\pm 3$ mm	$\pm 5$ 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

