

Monitoring of rockformation above railwaytrack

Industries: Geodesy / Construction
Application type: Monitoring

Description

Consultant Engineers use Dimetix Laser Sensors to monitor a debris flow activity that is causing, for example, a



Fig 1: Dimetix sensors in use

mountain creek to dam up. This damming up can lead to the flooding of a rail track. Both lasers measure to a distance of around 25 meters. As soon as a significantly shorter measuring distance is detected or a measuring error occurs, an alert is issued via a data logger with a GSM cell phone. The lasers are part of a larger system that monitors landslide activity and a debris flow channels. Webcams, among other things, are also used. In recent years, three debris flow events have occurred which were overcome without loss or damage, thanks to the alert system and associated measures. The system was installed in October 2010 and since then has operated without any problems. The measuring interval of the lasers is five minutes. The entire system is powered by

electricity but has a solar panel and a rechargeable battery to ensure that it operates continuously.

The two new lasers (fig. 1) are used to monitor a massive block (approx. 750m³, fig. 2), located at the edge of a thawing permafrost area, as the block moves down the valley, threatening a settlement area. Dimetix lasers are used here in combination with a data logger and other measuring probes (distance sensors, angle measurement sensors, etc.).



Fig 2: Monitoring of boulder

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 ± 1 mm
- Repeatability ± 3 mm
- Maintenance-free operation



DIMETIX APPLICATION EXAMPLE

AE-0205

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

