

Rock surveillance tsunami warning

Industries: Geodesy
Application type: Monitoring

Description

Across the bay is Nordnesfjellet. On the hillside is Jettan, a volatile mountainous area that is 350 meters wide, 400 meters long and contains eleven million cubic meters of rock. (See figure 1.) It is probably the world's most heavily guarded mountain. But people who live here are not frightened that mountain will sooner or later trigger a tsunami.

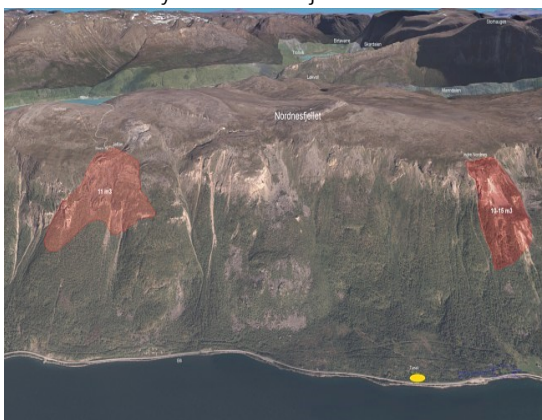


Fig 1: Two areas (in red) monitored closely

All together there are four to five independent systems which confirm that Jettan is about to detach from the parent rock, with a speed of around five centimeters a year.

There are parts of the mountain Jettan, unseen to the left of picture 1's image, being monitored closely, but as well there is also an area of Inner Nordnes that is in motion. Upon Jettan three Dimetix Distance Laser Sensors are set up, which measure, every day, the distance to a reflector plate that stands out on the moving rock. The inhabitants below are warned in the event of a landslide in order to get themselves to safety before the resultant tsunami hits.

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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 ± 1mm
- Repeatability ± 0.3 mm
- Maintenance-free operation



Fig 2: Laser measuring distance on reflector plate



DIMETIX APPLICATION EXAMPLE

AE-1601

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 | 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 |