



Increase Field Survey Efficiency by Merging Technologies in NOVA MultiStation

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- when it has to be **right**



A close-up photograph of a surveying instrument's lens. The lens is black and circular, with the text "Leica Geosystems" curved along the top inner edge and "Autofocus" curved along the bottom inner edge. Below the lens, a white label features the "mergeTEC" logo, which consists of a cluster of purple dots followed by the text "mergeTEC" in purple. The instrument's body is a light grey color. A solid red horizontal bar is positioned at the top of the image.

Advantages of **Laser Scanning**

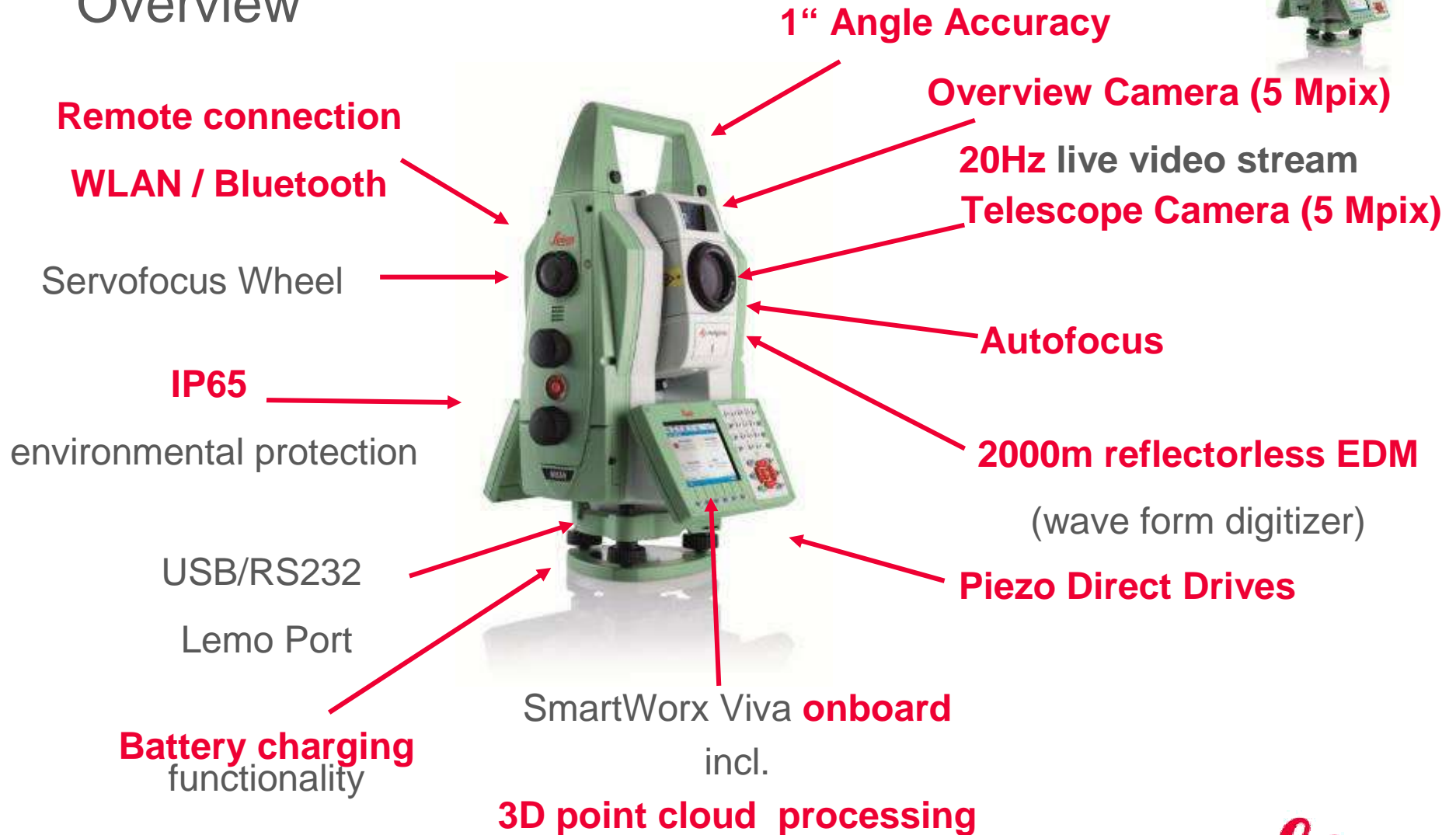
Advantages of **TPS Measurements**

Advantages of **Imaging**

Advantages of **GNSS Connectivity**

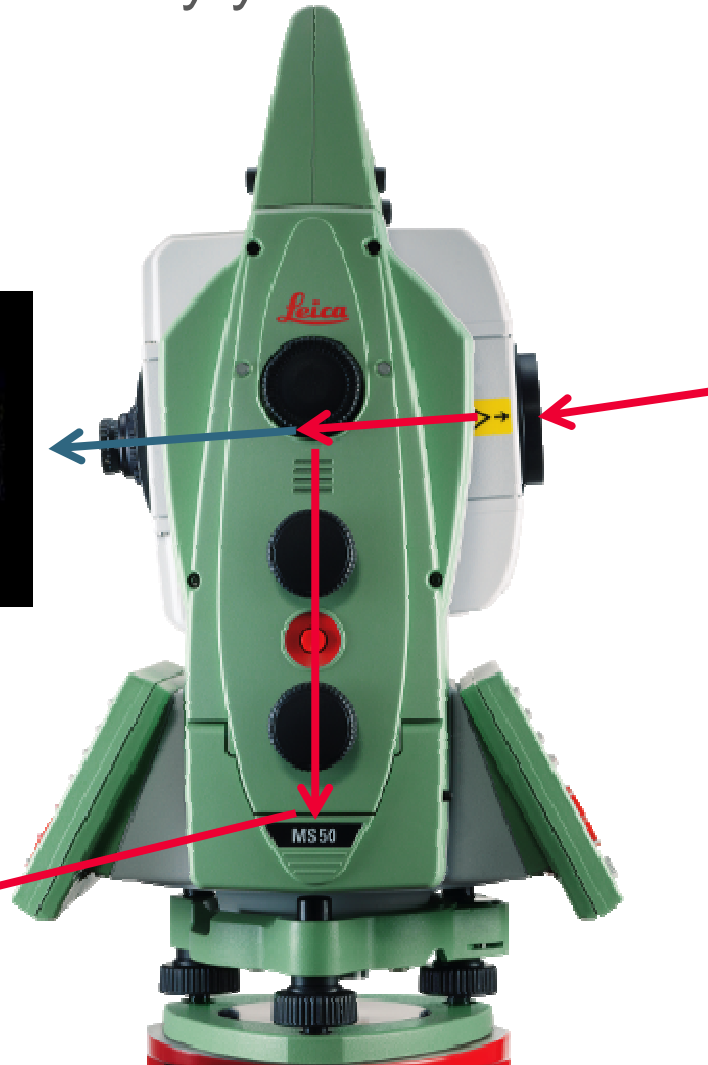
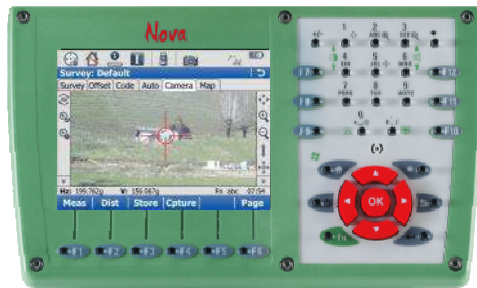
Leica Nova MS50 MultiStation

Overview



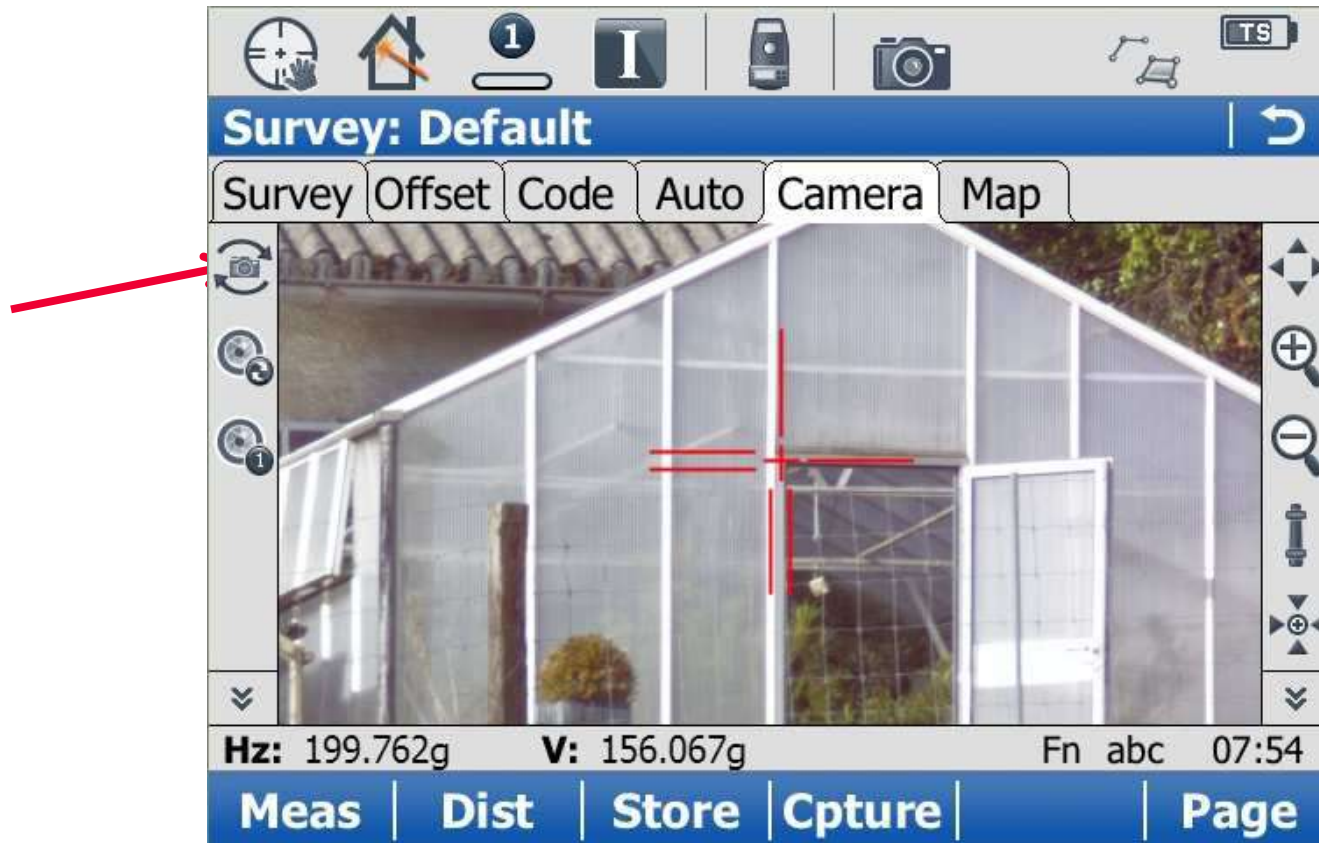
Leica Nova MS50

Imaging – change the way you work on Total Station



Leica Nova MS50

Imaging



Leica Nova MS50

Super EDM



Super EDM

- **Reflectorless up to 2000m** (2 – 4mm + 2ppm)
- **Auto Target Reorganization (ATR)** – No need for human aiming to target, high & consistent accuracy
- **Power Search and auto target locking** – One man surveying



Leica Nova MS50

Laser Scanning



3D laser scanning functionality:

- Scan range up to **1000m**
- **1000 pts/sec** up to 300m
- **mm level** scan precision
- On-board **auto point cloud viewing and registration**

Images

- High resolution images overlay 3D point cloud
- **RGB, Intensity display** of point cloud

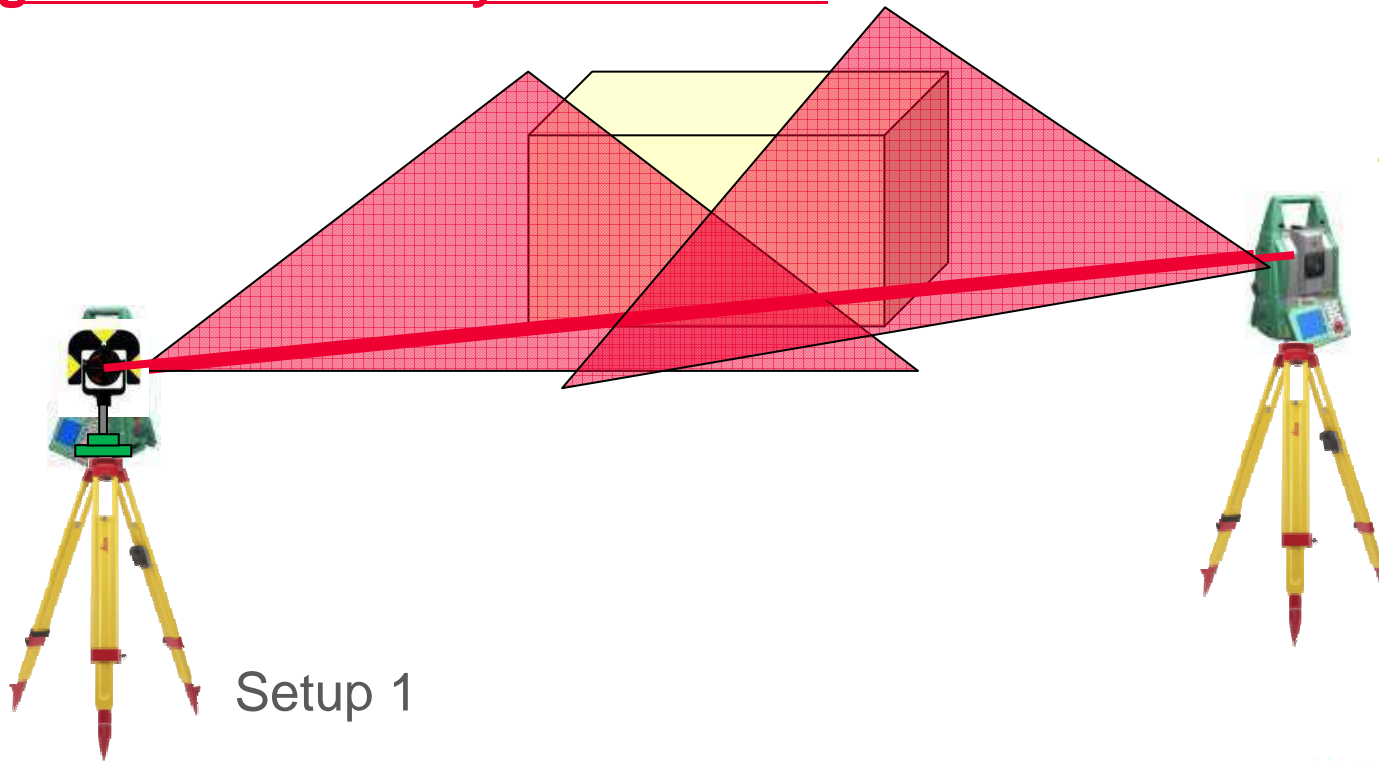
Leica Nova MS50

Scanning

Use standard TPS setup routines **as e.g. resection, know backsight, ...**

→ **NO «Registration» of point clouds in post processing needed**

Registration is already done in field

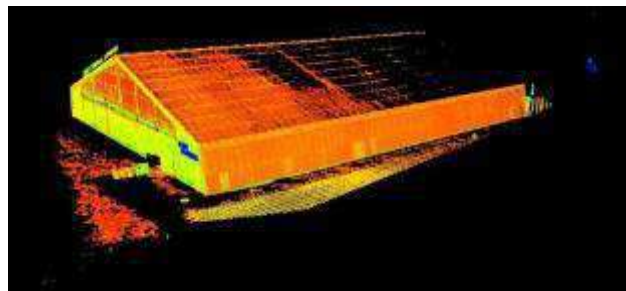


Leica Nova MS50 Scanning

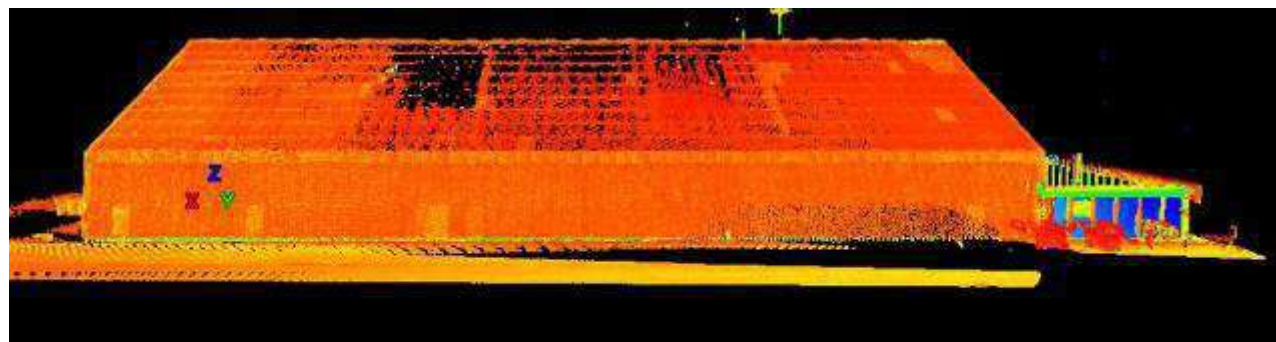
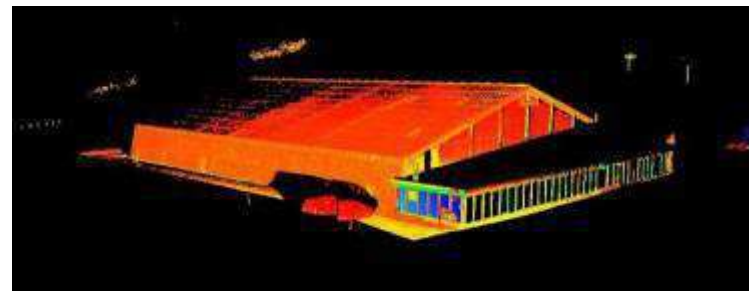


Example of scanning a house

Setup 1



Setup 2



Viewing 3D point cloud onboard

Scanning



3D point cloud viewer onboard

- Viewing point clouds from different instrument setups
- **Single colour, RGB** and **intensity colouring**
- Verification of scan data directly in the field
- Check completeness of scan



Leica Nova MS50

Data flow



Basic in-the-field
Processing
(e.g. Volumes)



Internal memory
SD-card
USB-stick
USB

Field

Office



3rd party SW & CAD solutions

Process TPS and Scanning data



Leica Infinity

Manage / Combine / (Re-) Process
Scanning Application Results



Cyclone/CloudWorx

Point Clouds for
post-Processing



Leica MultiWorx

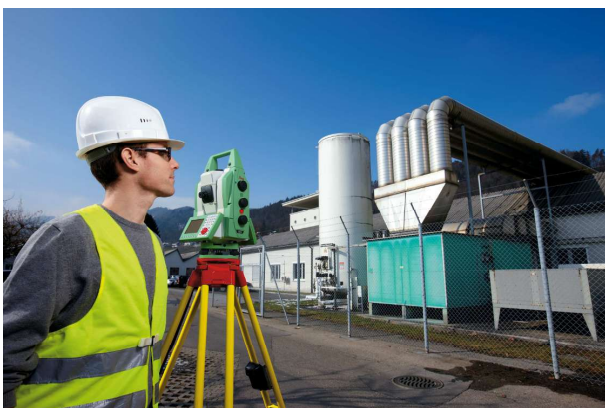
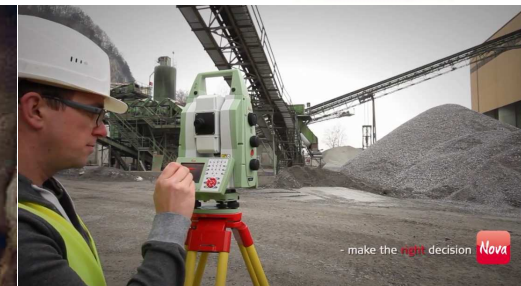
AutoCad PlugIn for simple
point cloud processing



GeoMos

Point Clouds
for Analysis
In monitoring applications

Leica Nova MS50 Example Applications.



Example Application

Façade Scan.



Example Application

Façade Scan. (Demo video)



https://www.youtube.com/watch?v=_WuhqcE67U8

Example Application

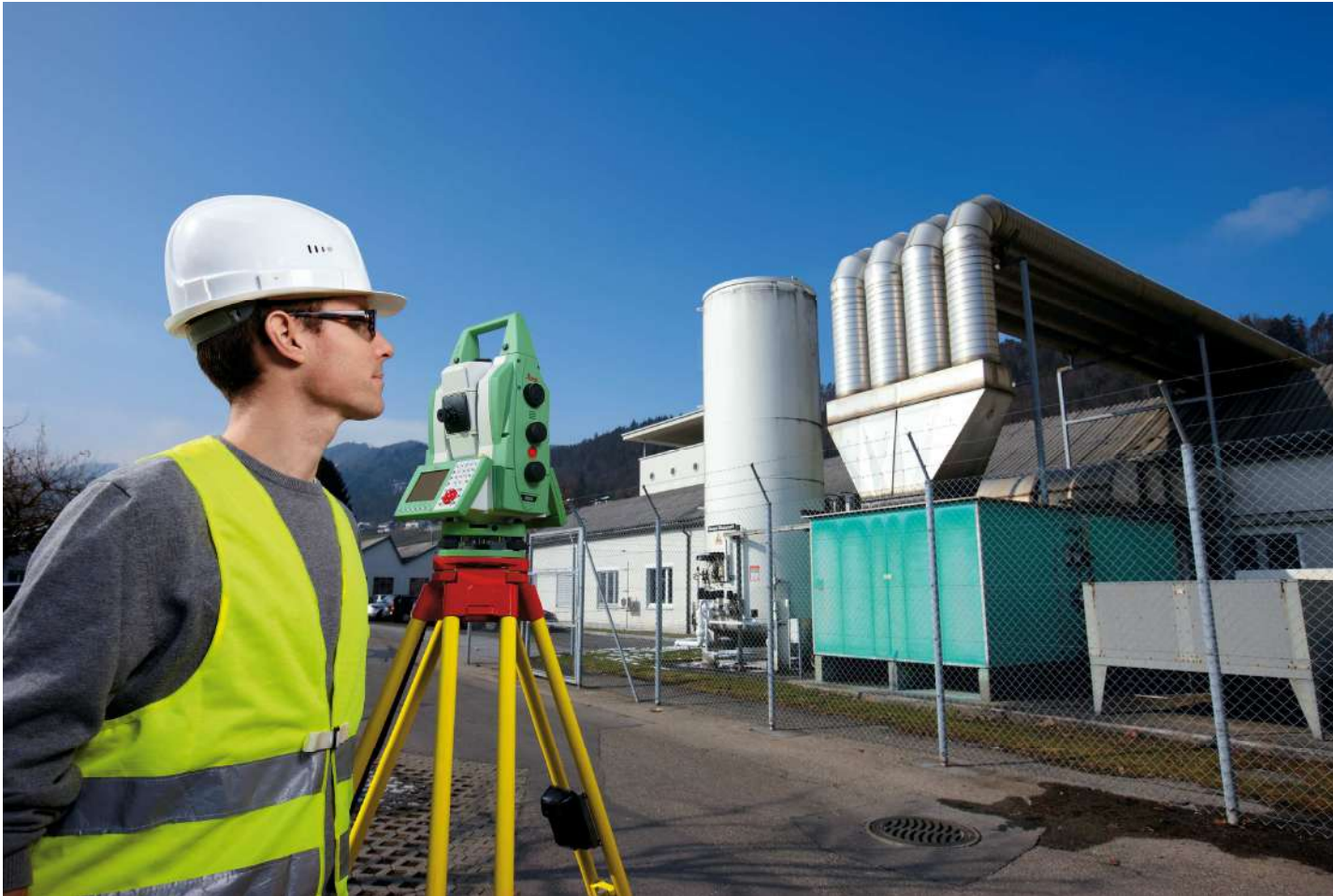
Façade Scan – Benefits.



- Create deliverables quicker than standard Total Station
- Improve delivered information
- Reduce errors
- Measure in the office / Sharing result over Internet

Example Application

Simple Object Modelling.



Example Application

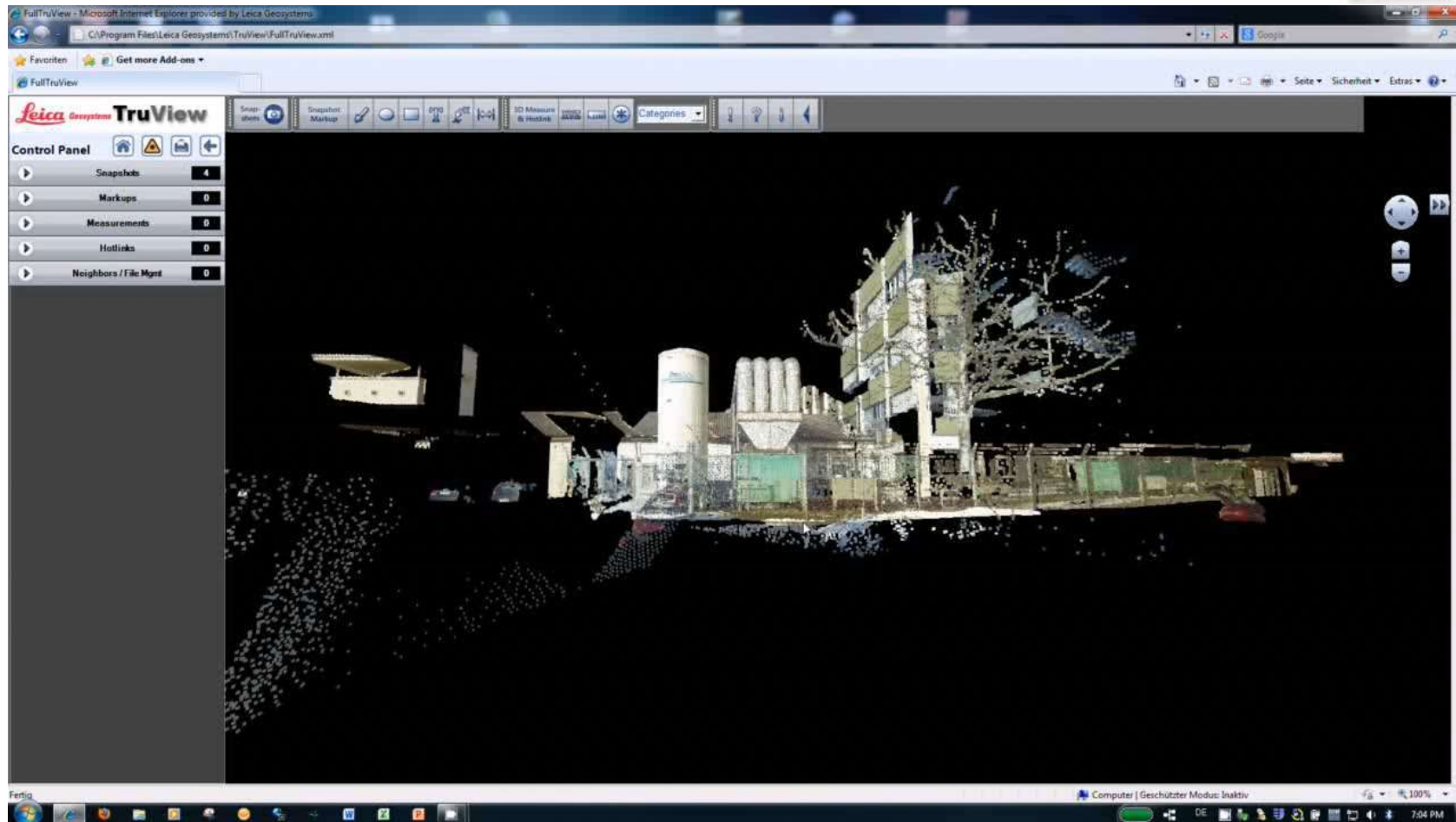
Simple Object Modelling. (Demo video)



<https://www.youtube.com/watch?v=jAcrVn14LUM>

Example Application

Simple Object Modelling – sharing result by TruView.



Example Application

Simple Object Modelling – Benefits.

- Create deliverables quicker than regular Total Station
- Reduce errors, thanks to “automatic point cloud registration”
- Open new opportunities for business
- Measure in the office / Sharing result over Internet

- when it has to be **right**

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Example Application

Volume and Area Measurement



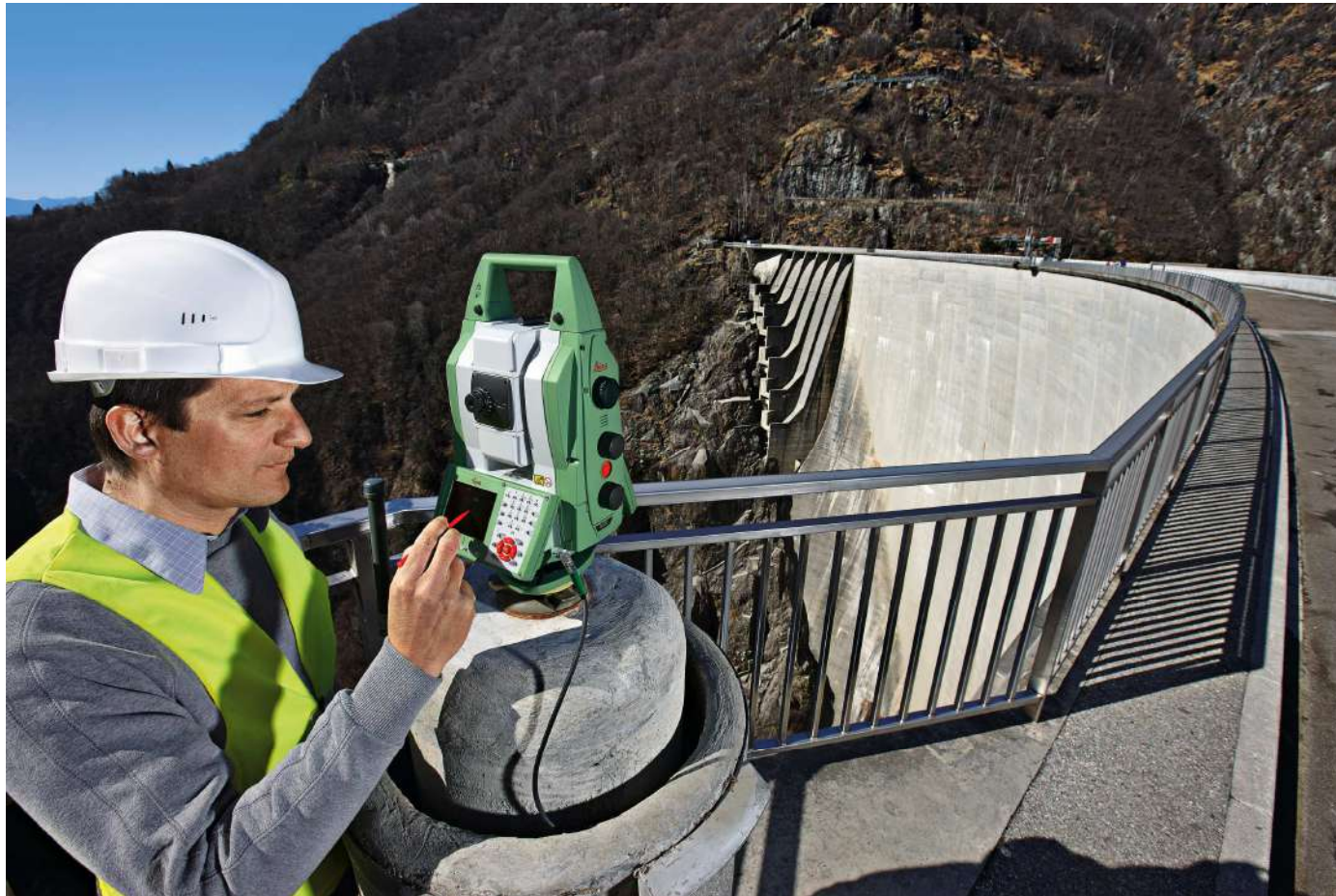
Example Application

Volume and Area Measurement (Demo Video)



<https://www.youtube.com/watch?v=elCKu0iusfs>

Example Application Monitoring.



Example Application Monitoring. (Demo video)



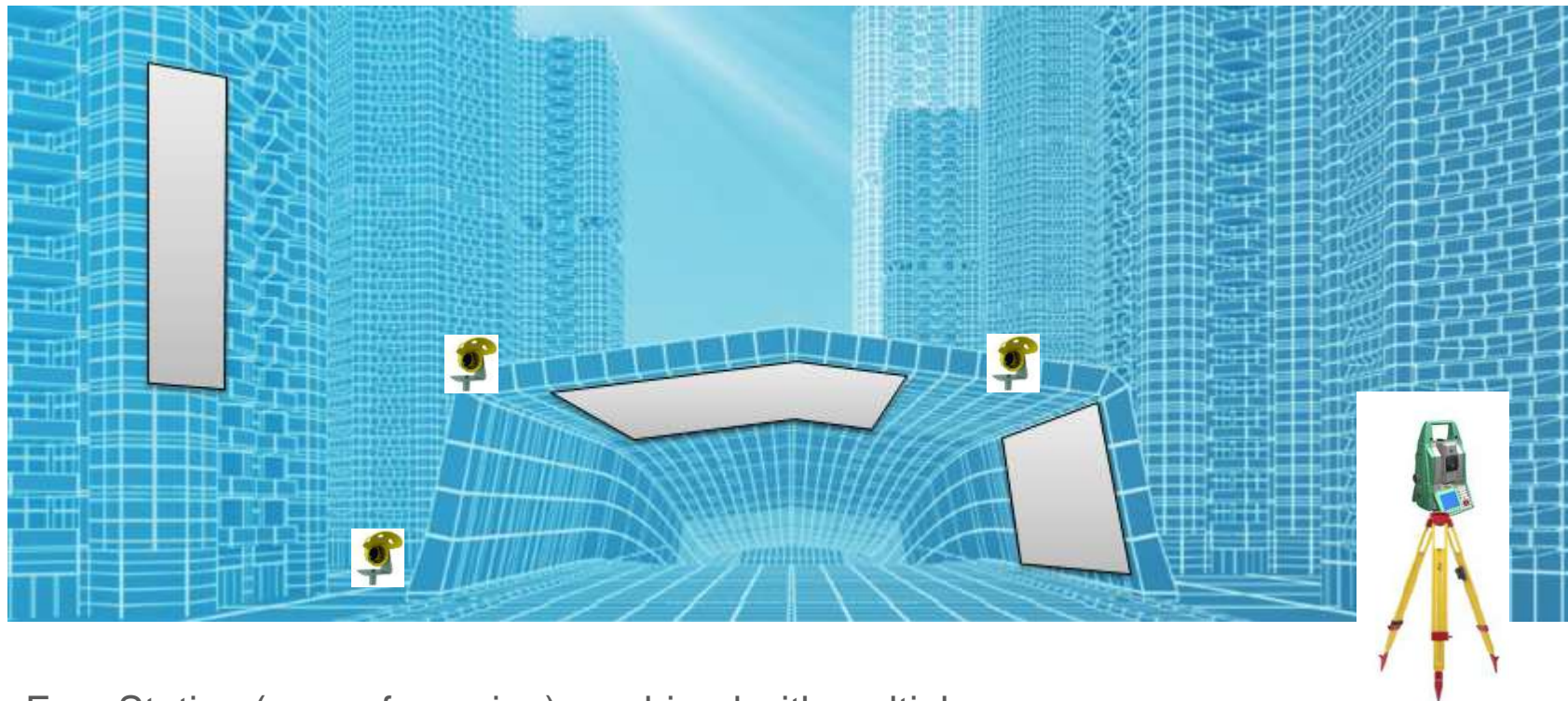
<https://www.youtube.com/watch?v=JL1QtSpno40>

Leica GeoMoS Scanning with MS50

General



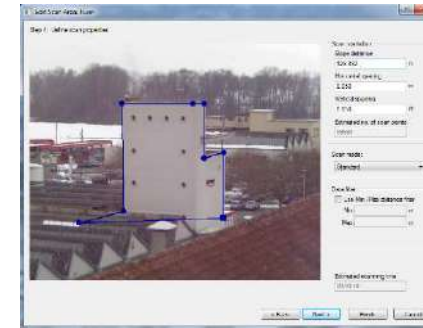
First-ever automatic scanning solution in an integrated monitoring system



Free Station (geo-referencing) combined with multiple scan areas

Leica GeoMoS Scanning

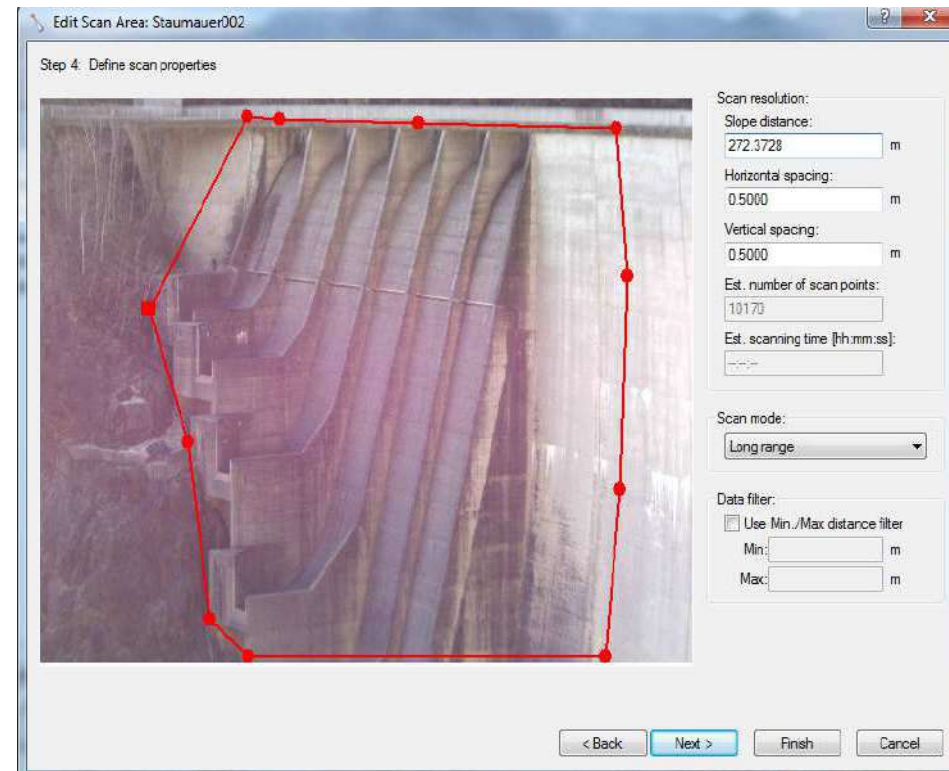
How it works?



Scan wizard for configuration

- Take image to posit MS50 to area of interest (Wide Angle Camera or 30x Tele Camera)
- Polygon to define scan area
- Scan properties

*Image assisted **remote learning** of scan areas, even from the office*



Leica GeoMoS Scanning

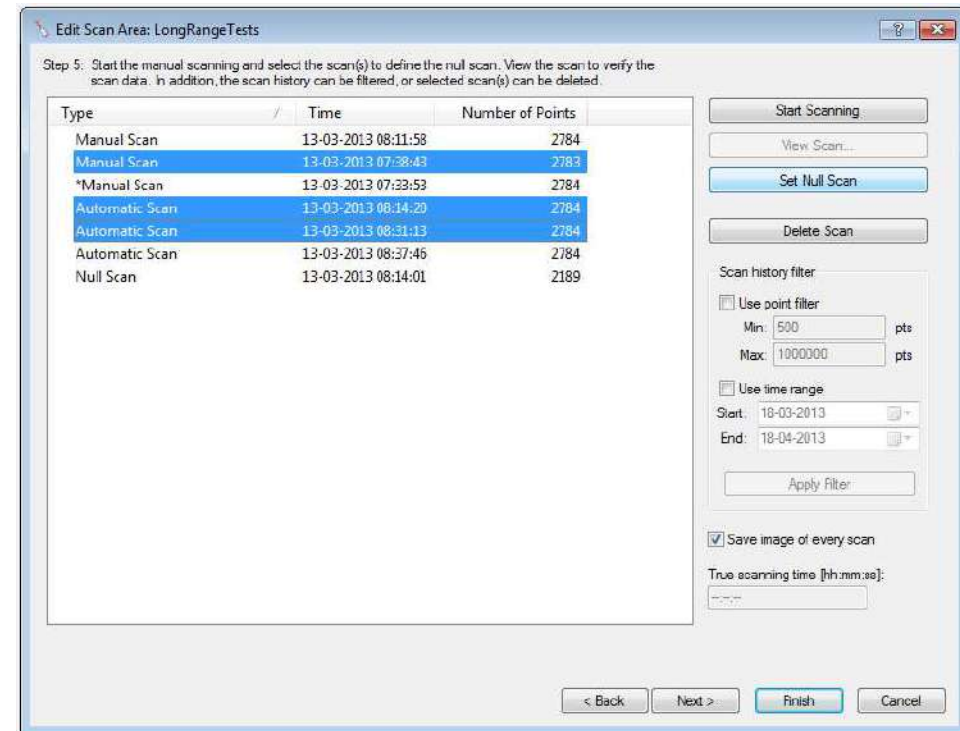
How it works?



Create Null Epoch as reference for monitoring

- Start Scan **one or multiple times** under good conditions
- Merge scans to **Null Epoch**
- 3D Visualization of Null Epoch

Add final scan area to the automatic measurement cycle and define the measurement interval

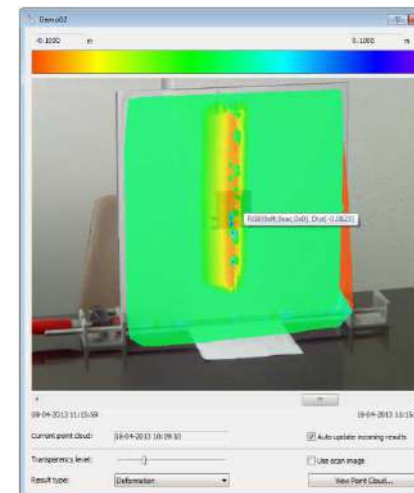
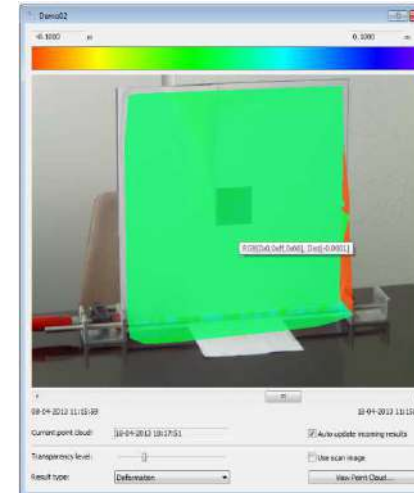


Leica GeoMoS Scanning

How it works?

New **nVec Technology** for cloud processing in deformation monitoring

- Automatic process, No operator
- 24/7 running system, continuous cloud production
- Simple requirement: **display change of the color when deformation is detected on the object** – deformation volume



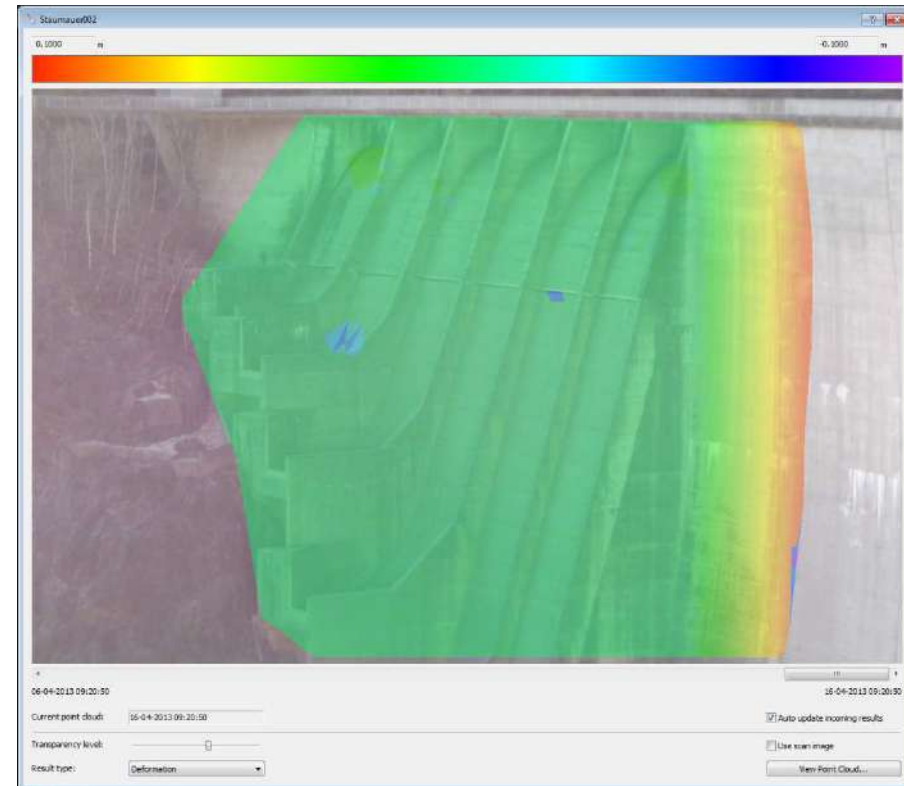
Leica GeoMoS Scanning

How it works?



Impressive result out of 11'000 points,
300m, 0.5m spacing

- Result is linked to high resolution image
- Max. Deformation Vector to distribute warning over Email, SMS
- Deformation volume [m3]
- Slider to check historic data



Example Application

Monitoring structures e.g. Bridges, Slope, Dams ...

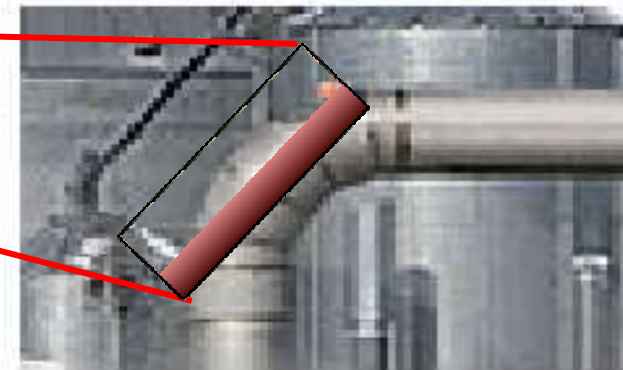
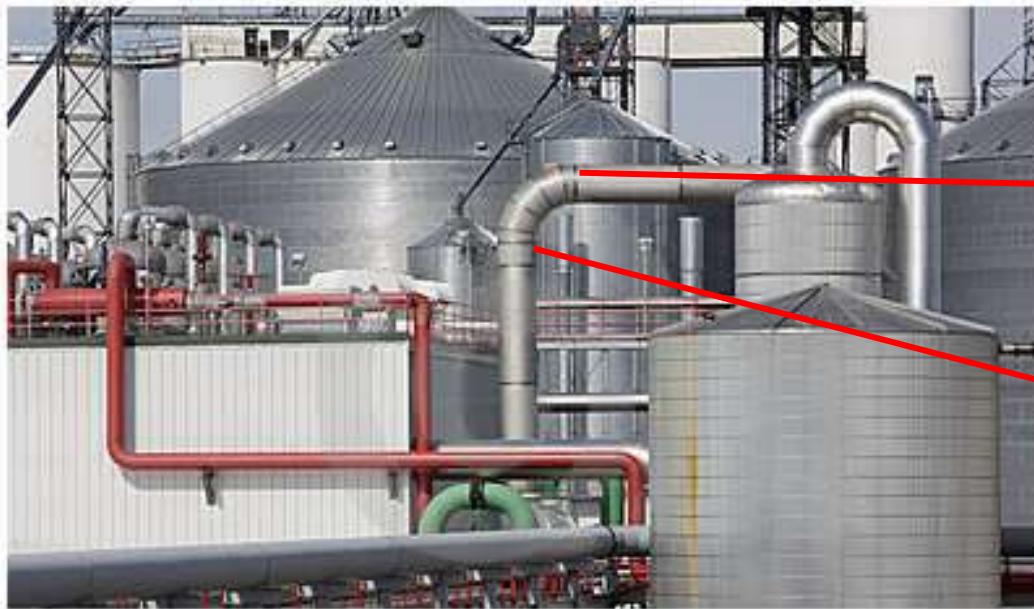


- when it has to be **right**

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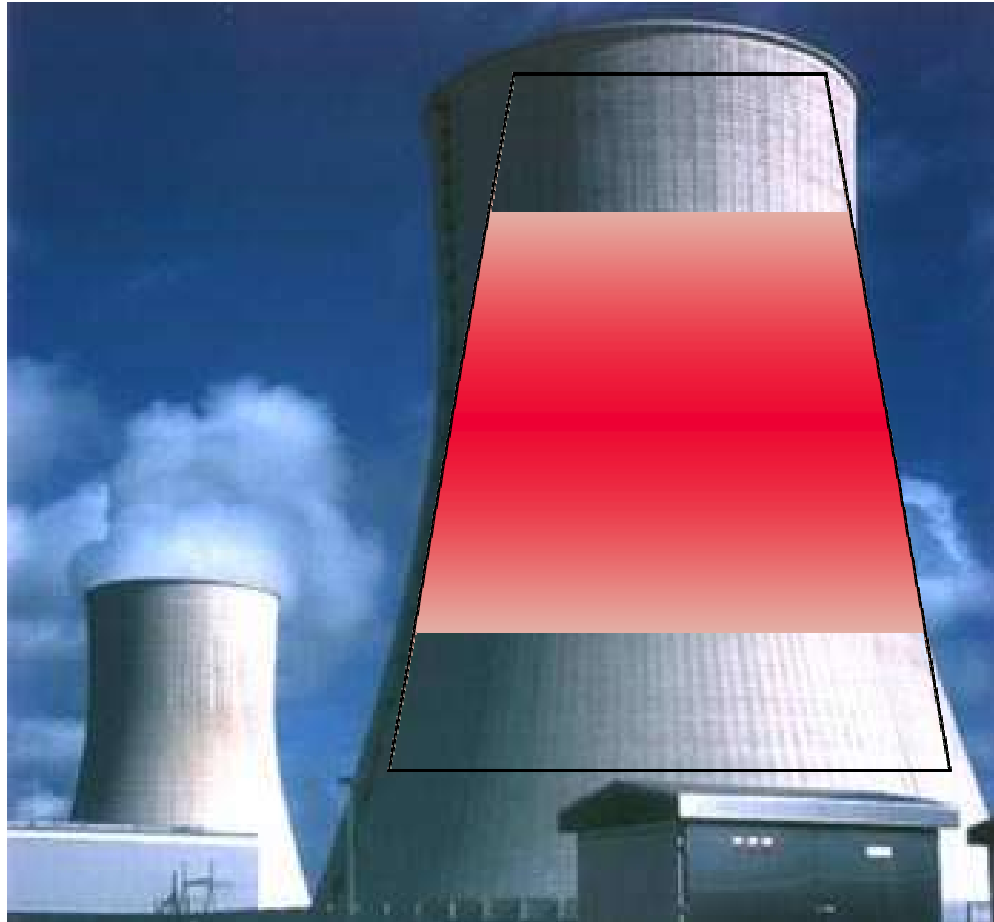
Example Application

Monitoring – Pipes in Plants.



Example Application

Monitoring – Cooling Towers.



Example Application

Monitoring – Benefits.



- Full monitoring coverage - **combining scans and images with prism monitoring**
- Extend information and situation control - **highest monitoring density** by measuring **surfaces** between the prisms
- Fully integrated - **Automated scanning process** in geodetic and geotechnical monitoring

Example Application Monitoring – Benefits.



- **Image** assisted **remote learning** and **easy configuration** of scan areas, even from the office
- Easy upgrade of existing monitoring installations with **scanning**
- Automatic **reporting** & **status alert**



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Call for Demo!



Thank you for your attention!