Increase Field Survey Efficiency by Merging Technologies in NOVA MultiStation

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Advantages of Laser Scanning

Advantages of TPS Measurements

Advantages of Imaging

Advantages of GNSS Connectivity
Leica Nova MS50 MultiStation Overview

Remote connection
WLAN / Bluetooth
Servofocus Wheel
IP65, environmental protection
USB/RS232, Lemo Port
Battery charging functionality

Overview Camera (5 Mpix)
20Hz live video stream
Telescope Camera (5 Mpix)
Autofocus
2000m reflectorless EDM (wave form digitizer)
Piezo Direct Drives

SmartWorx Viva onboard incl.
3D point cloud processing

1" Angle Accuracy
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

Field

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

Office

Internal memory
SD-card
USB-stick
USB

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
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 ...
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
Thank you for your attention!

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Call for Demo!