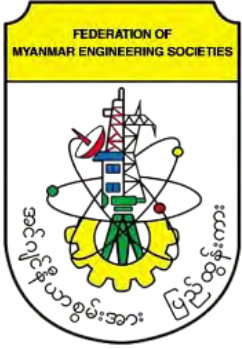



# More about the Digital Instruments Effectively and Efficiently Used in Today's Construction Industries



## Part(1)-Innovating Measurement, Surveying and Reality Capture Technologies



-  Land Surveying Instrument
-  Construction Materials Testing Instrument
-  Bathymetric & Hydrographic Surveying Instrument
-  Educational, Training & Skill Development Instrument
-  Geological & Earth Exploration Instrument
-  Air & Water Quality Testing Instrument
-  Weather, Environmental & Horticulture Instrument
-  Laboratory & Scientific Instrument



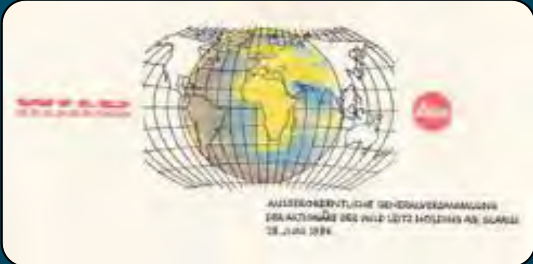




# Leica Geosystems History



The origins of Leica Geosystems date back 200 years, with the founding of Kern & Co. in 1819 city of Switzerland Aarau town.



Formation of the Wild Leitz Group announced on 17 December 1986.



At 1988 , Kern & Co. AG is acquired by the WILD-Leitz Group.



At 1990 , WILD-Leitz merges with Cambridge Instruments to become the Leica Group.





## Our Commitment to Quality & Precision

❑ Quality is our obligation. It is the result of over 200 years of tradition and of constant innovations based on intensive research.

- Swiss precision craftsmanship
- Premium materials
- Highly qualified employees



# Leica Geosystems - Very long history in Total Stations...

T2



1921-1936

T2 (mod)



1973-1996

TPS300/400/  
700/800



1998-2008

Leica FlexLine  
TS02/06/09



2008-2018

Leica FlexLine  
TS03/07/10



**2018 -**

Empire State Building



Sears Towers



Emirates Towers



Shanghai Towers







HEXAGON

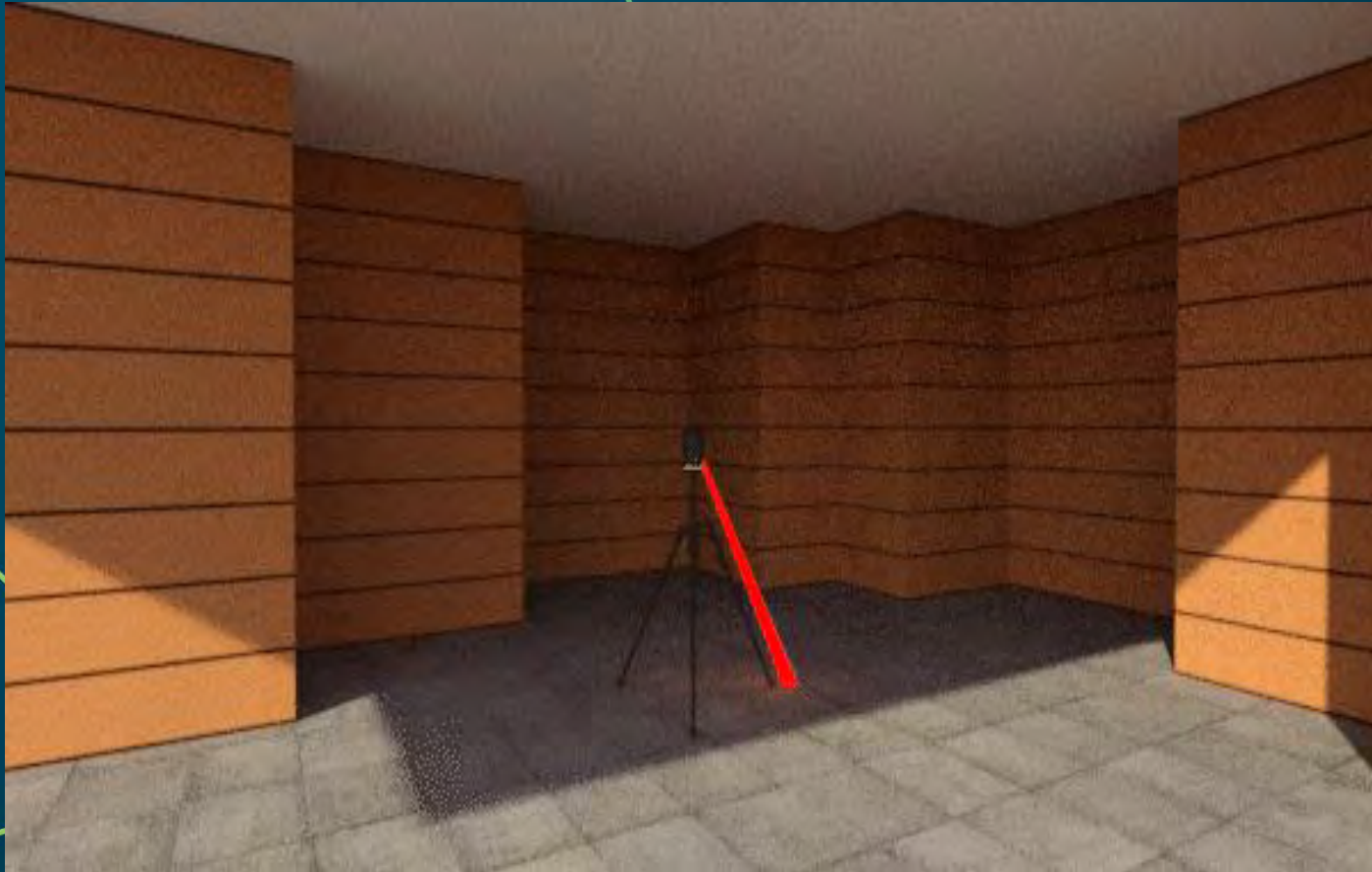
*Leica*  
Geosystems

## Reality Capture Scanner (Laser Scanner)

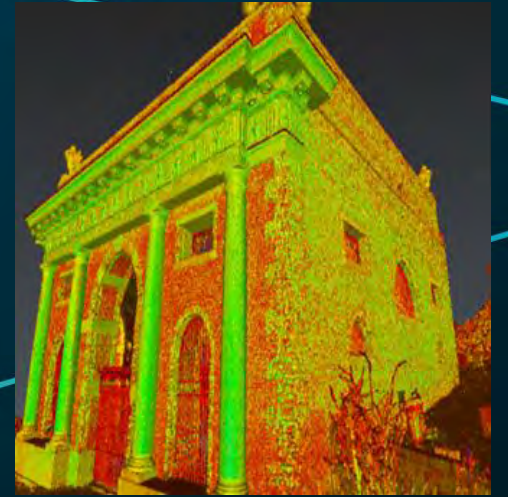
[www.amigosmyanmar.com](http://www.amigosmyanmar.com)



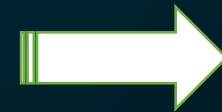
# Benefits



Point Cloud



Image



# Advantages of 3D-Laser Scanners



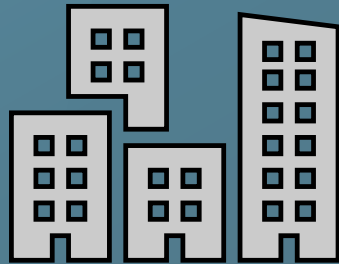
Area Coverage



Accuracy



Speed



Long Range



Non-Contact  
Measurement



Effectiveness





Analogue



Digital



# Amazingly Fast

From analogue measurement or Total Station data collection workflow that only gets one point in one second.



1 point / second

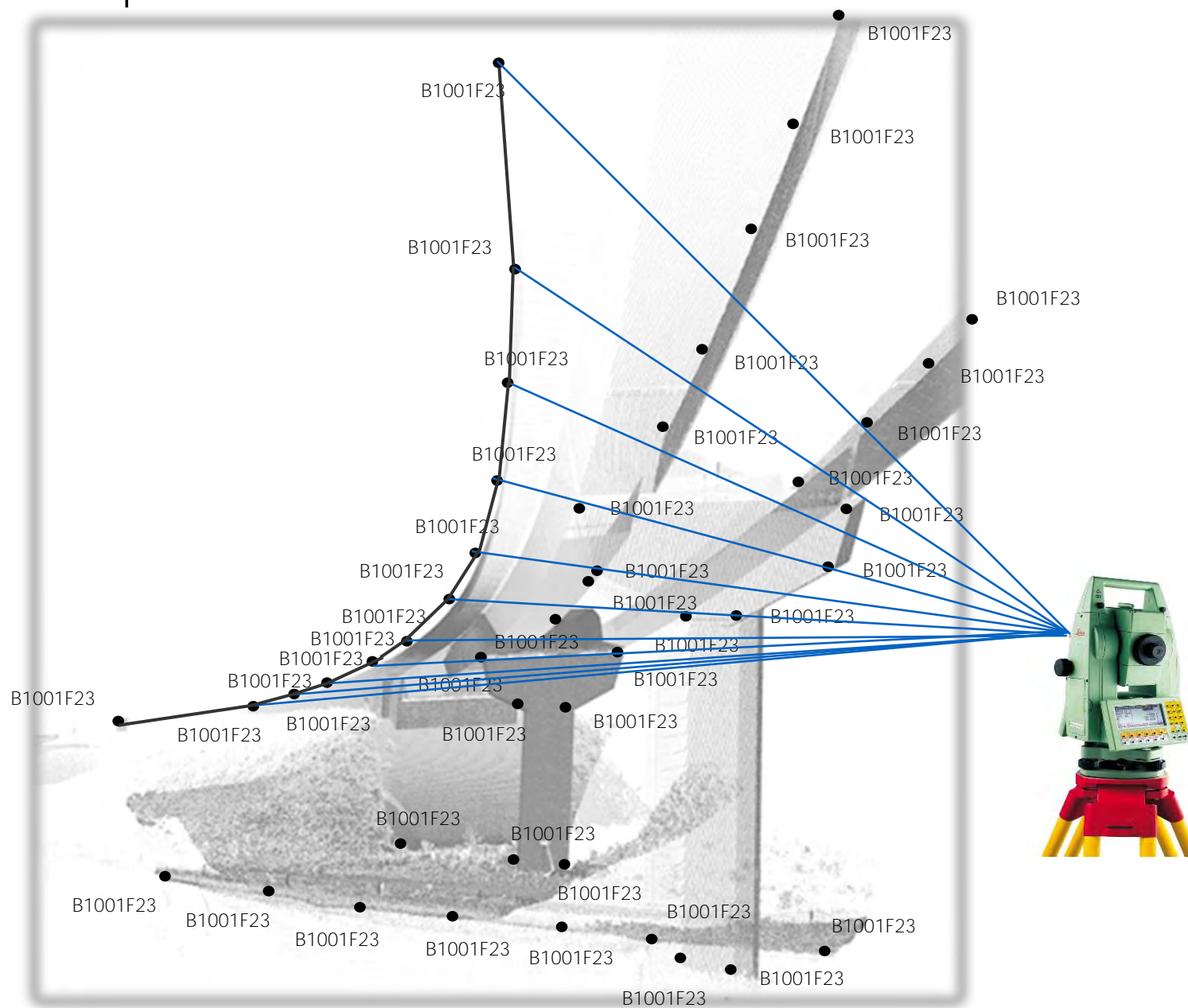
To rich data mindset and workflow where will allow you to get 2,000,000 points per second.



2 million points / second

# Work Concepts Of Laser Scanner

Can you see the original  
shape of this object?  
Measure with scanner

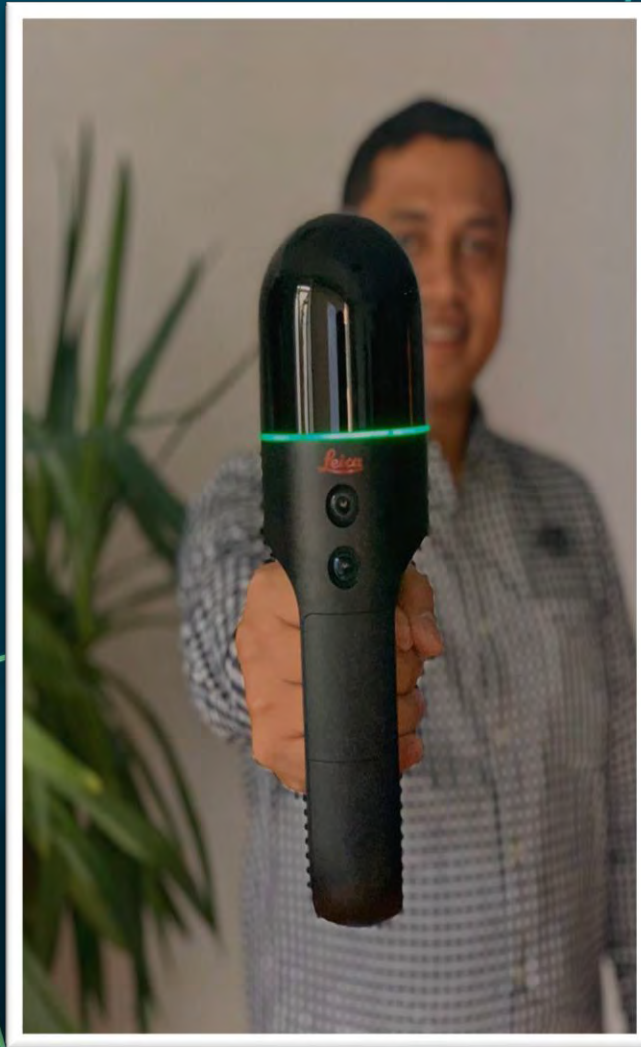




Static Scanning



Mobile Scanning



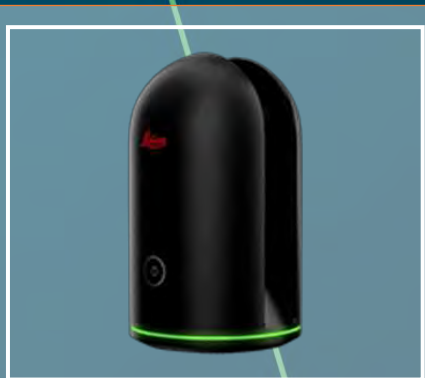
Drones Scanning





# Leica Reality Capture Products

*Leica*  
Geosystems



BLK360  
Static Scanner



RTC360  
Static Scanner



P-Series  
Static Scanner



Pegasus TRK  
Mobile Scanner



BLK2FLY  
Drone Scanner

The All-New  
LEICA BLK 360







360,000 Points per second

60m distance

Camera Thermal and HDR

1 button

Auto-assemblage

1 kg weight

3mins capture

Application Mobile





# Leica RTC 360







**2 Millions** points per sec

**<1min** image full HDR

**HDR** Imagerie

**Double** scan

**5.35** kg weight

Assembly **on site**

**130m** distance





# Leica RTC360

---



Leica P Series Scanner







# Leica P-Series Laser Scanner

P 30 Series



120m

P 40 Series



270m

P 50 Series



1000m



>1000m distance

Imagerie HDR

20 seconds par scan

1 Millions Points per Second

< 2 min image full  
HDR



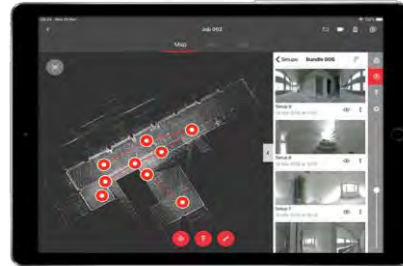
# BLK360 SCANNING SOLUTIONS

## WORKFLOW OPTIONS



### FIELD 360 App

- » Pre-registration of scans
- » Data cleaning
- » Data tagging and measurements
- » Floorplan creation and dxf/ifc export



### Laser Scanner

- » Complete data
- » Synchronized & up-to-date

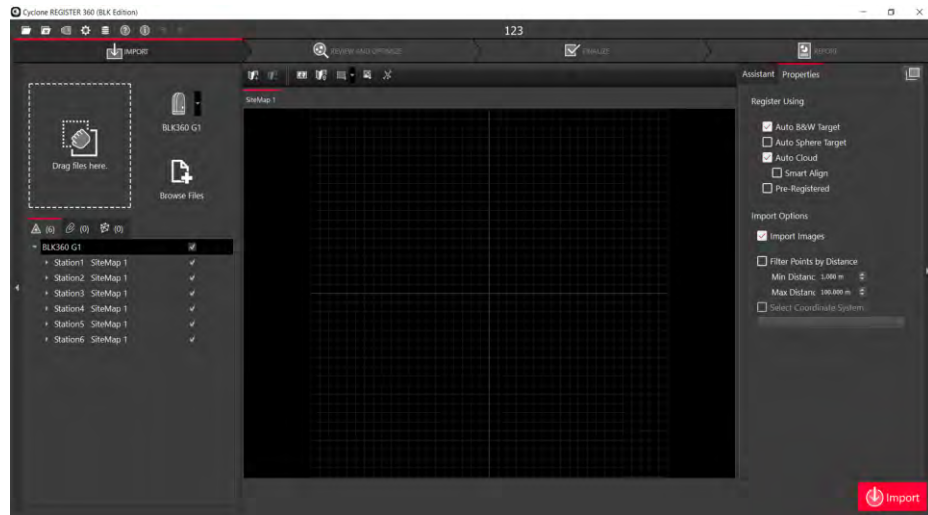


### Cyclone REGISTER 360 BLK Edition

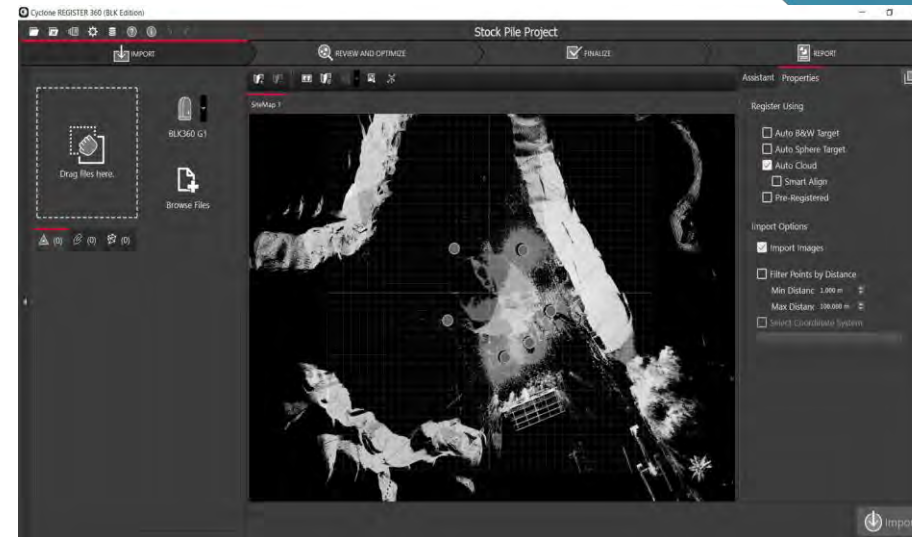
- » Editing data
- » Registering data
- » Exporting data



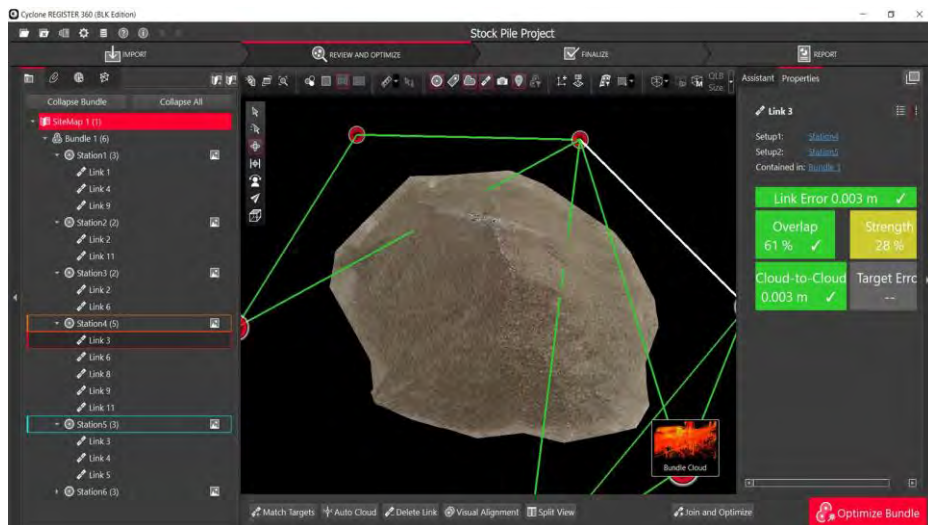




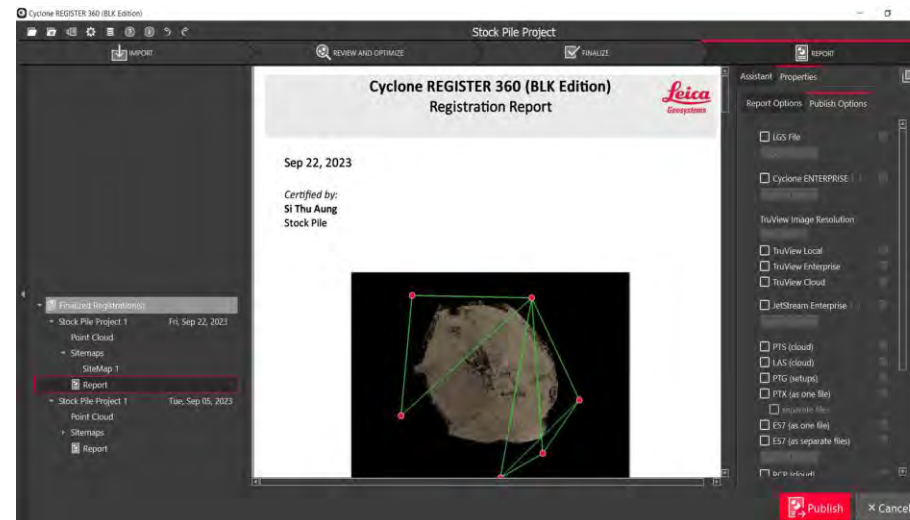
Step1 - Data Import



Step2  
Review & Optimize



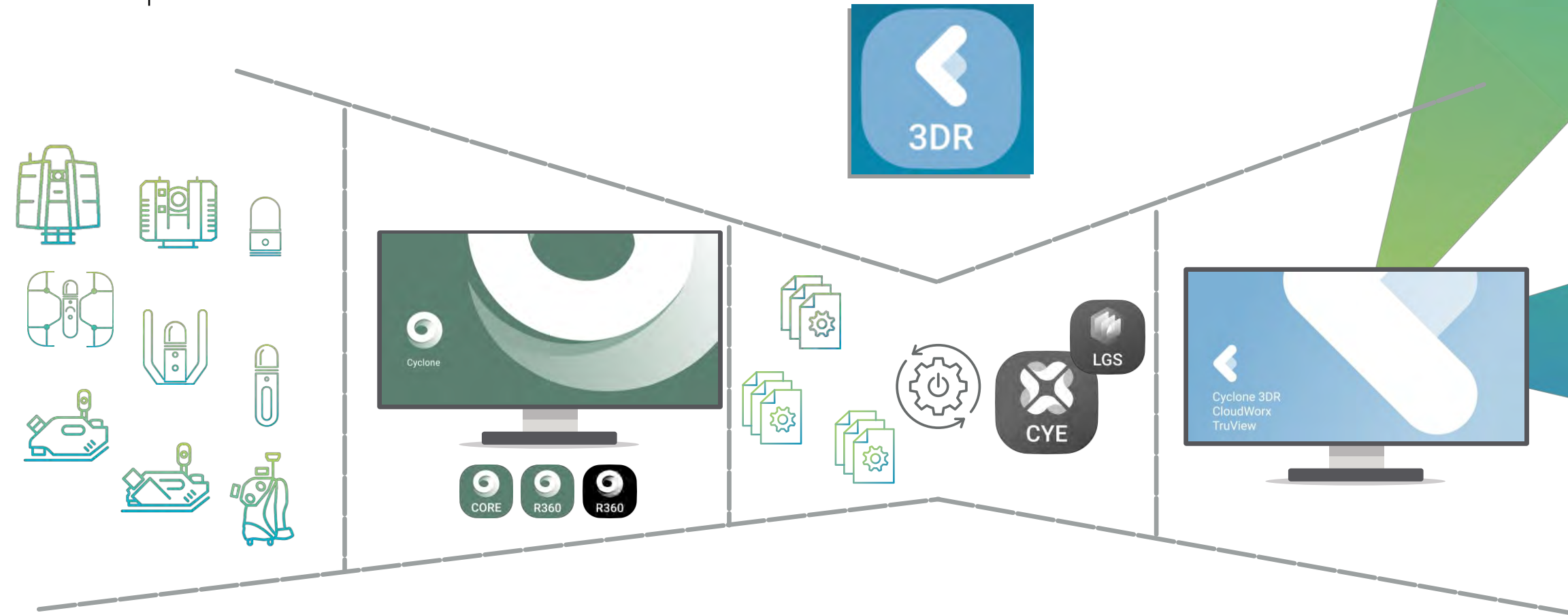
Step3 - Finalize



Setup4 - Report

# Field to Finish

Desktop Mode



CAPTURE

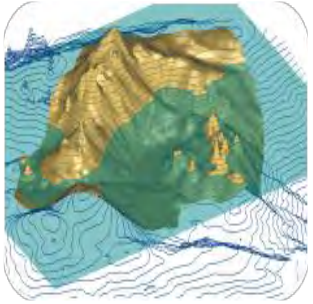
PREPARE

MANAGE

DELIVER



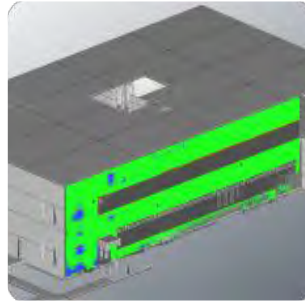
# Applications



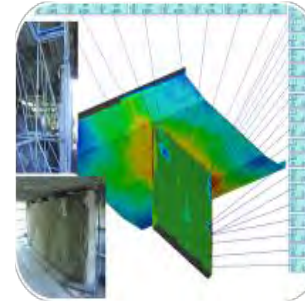
Land  
Surveying



Architecture



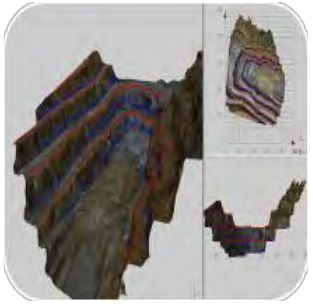
Construction



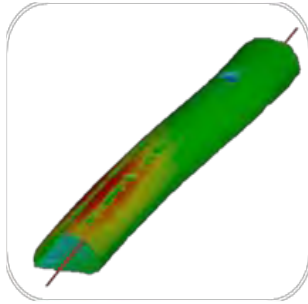
Civil  
Engineering



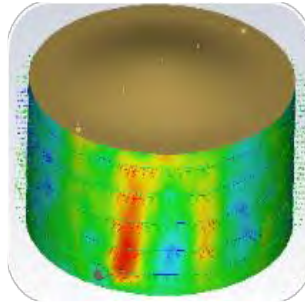
Cultural  
Heritage



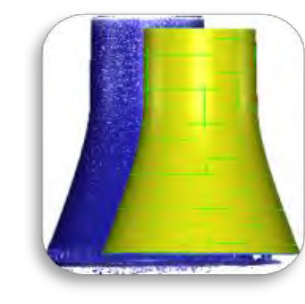
Mine &  
Quarry



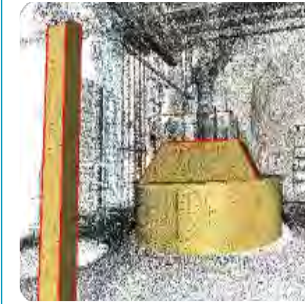
Tunnels



Tank



Energy



Facilities

# Leica BLK 3D Imager

*Leica*  
Geosystems





# What is BLK3D imager?

Measurements anytime, anywhere

BLK3D easily measure hard to reach areas

Taking photos and measuring distances is easy  
**“also laser distance measurer”**

Every image capture precise 3D measurement record

BLK3D measurement solution based on photos







# Leica BLK3D Imager



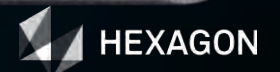
## BLK3D Accuracy & Performance

- EDM : 1mm
- 2D Picture : +/-3mm
- 3D Picture : +/-6mm
- Measurement Speed : <1sec
- Range : up to 20m (imaging), 250m (electronic laser distance measurement)



## TECHNOLOGY

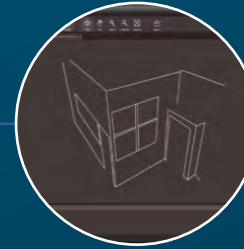
- Operating system : Android 7
- CPU : 2.35GHz
- Storage : 64GB
- RAM : 4 GB
- Communication : WLAN(5GHz), Bluetooth 4.1 and 2.1



# Leica BLK3D Desktop Software



Base Subscription



3D Modelling (Option)



BLK3D Autodesk® BIM 360™ (Option)



Architecture (Option)







- when it has to be **right**



Manual Total Station  
&  
Robotic Total Station



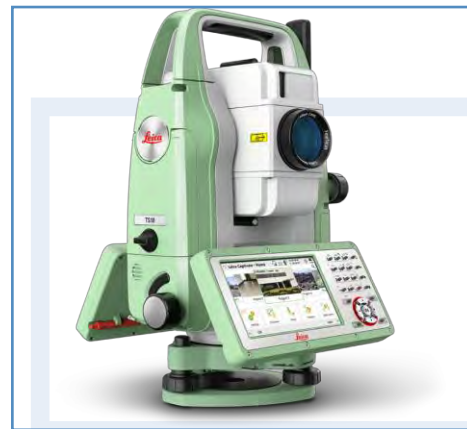
# New Generation of Manual Total Stations - The New Leica FlexLine



TS03



TS07



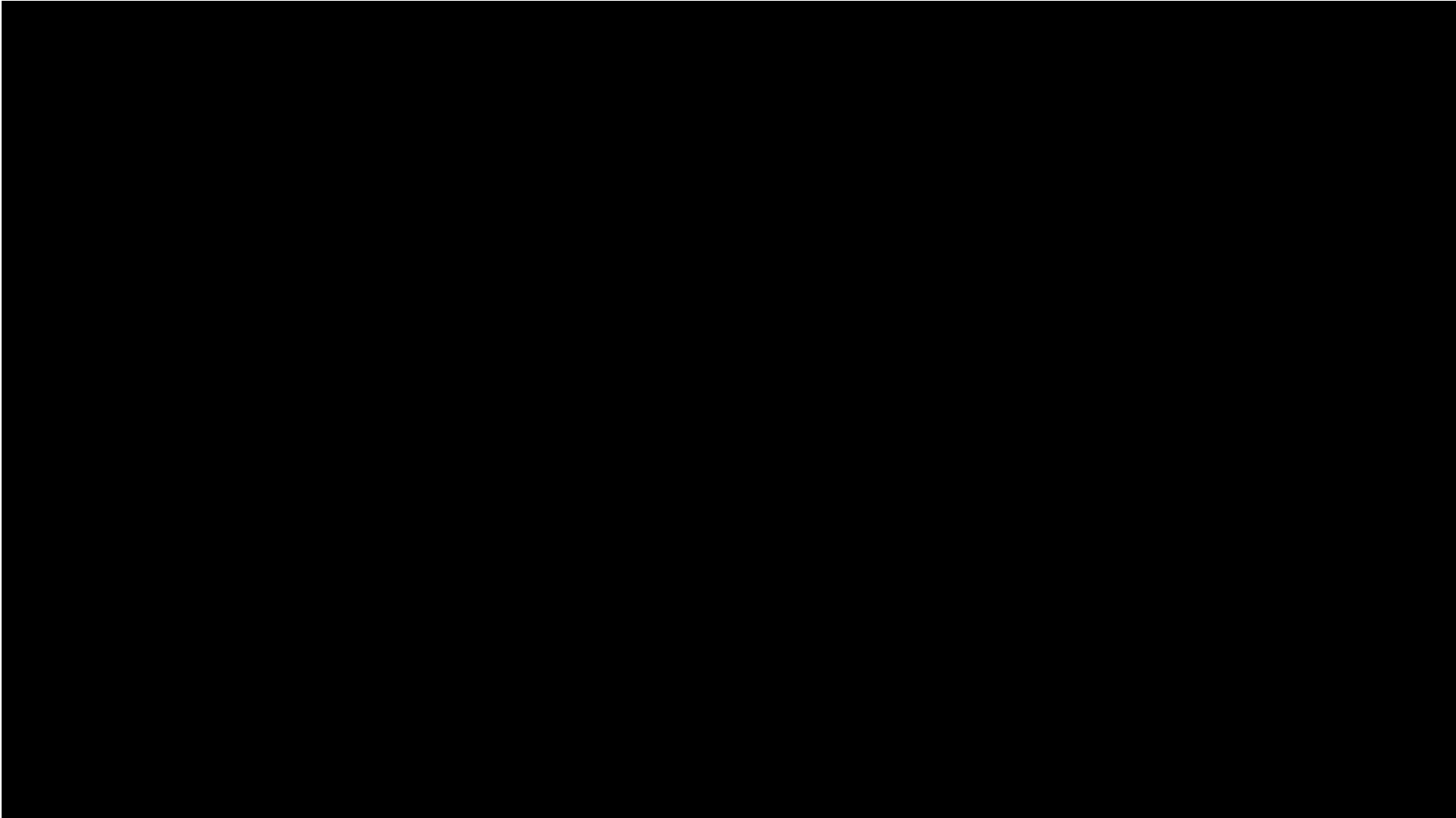
TS10



## Leica Total Station Introducing Video

See the new generation and feel the advance technology

# Leica Total Station Introducing





## Characteristic Of TS 03



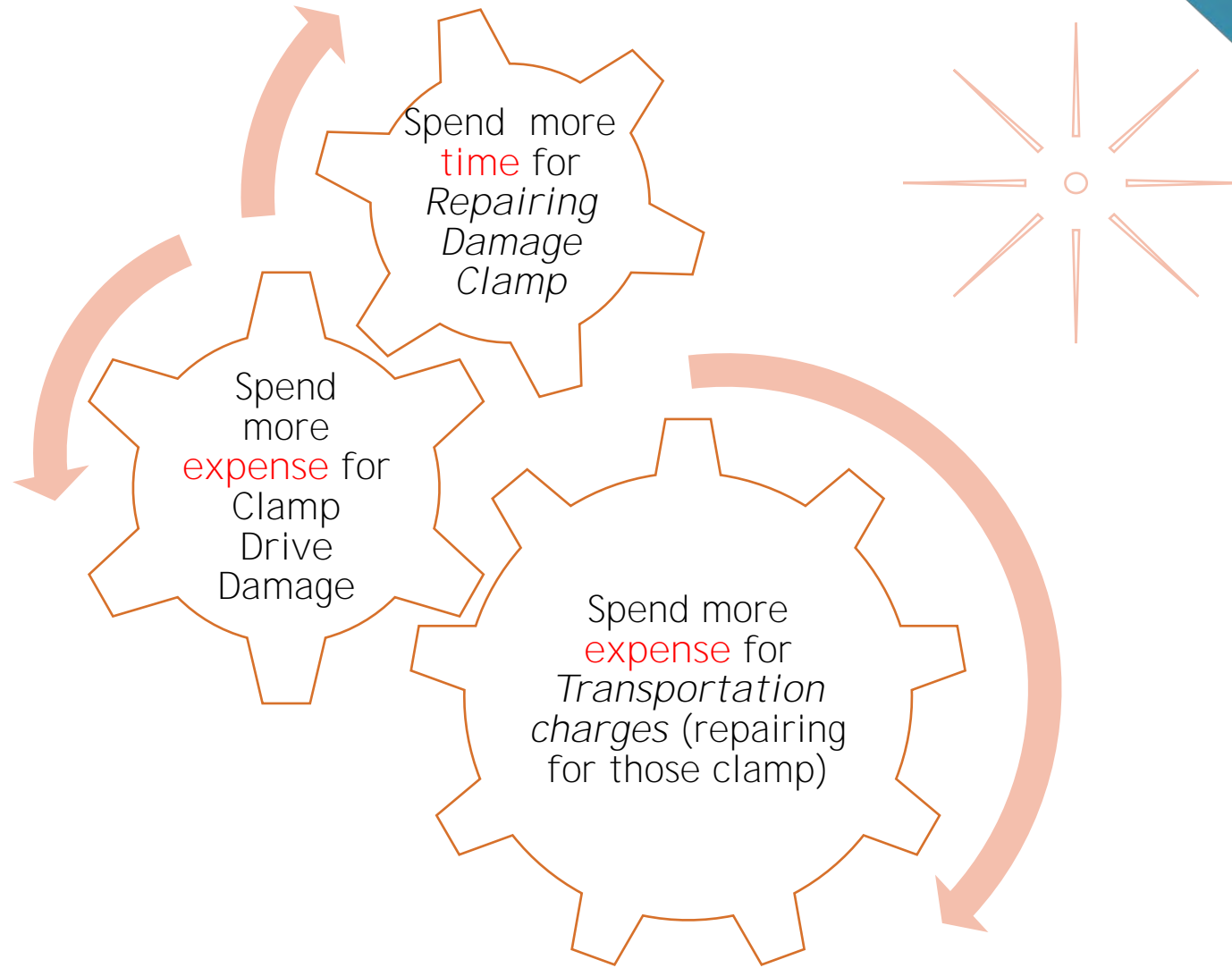
The Most Accurate Total Station With

- 1mm + 1.5ppm

Angular Accuracy

- **2"/3"/5"**

# Endless Drive



**Save many cost and time for those process**





## Environmental Tests: IP Rating Video

Demonstration Testing waterproof, dustproof  
and see how durability

# Environmental Tests: IP Rating Video



**IPx6 tests - ingress  
of water**

The instrument is  
secured...



# Characteristic of TS07



The Most Accurate Total Station With

- 1mm + 1.5ppm

Angular Accuracy

- **1"/2"/3"/5"/7"**



LOC8  
(Optional)

The World's First **Auto-Height** Feature In Total Station

# The World's First **Auto-Height** Feature In Total Station





# Benefit Of Auto-height Function Compare with Others



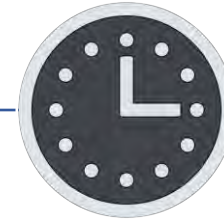
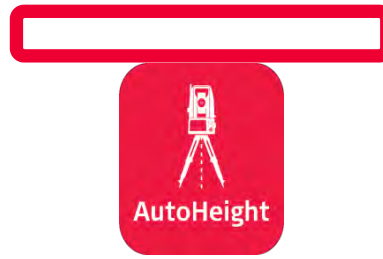
**00:03.1 Sec**

**00:23.6 Sec**

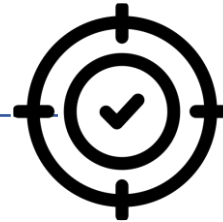
**00:25.6 Sec**



# Benefit - Auto-Height



Time savings



Improved accuracy



No mistakes



Less equipment



# Key Features - 4G Modem

- What internet based functions can be used?



FTP



Leica Exchange  
Active Assist (TS10)



## Benefits

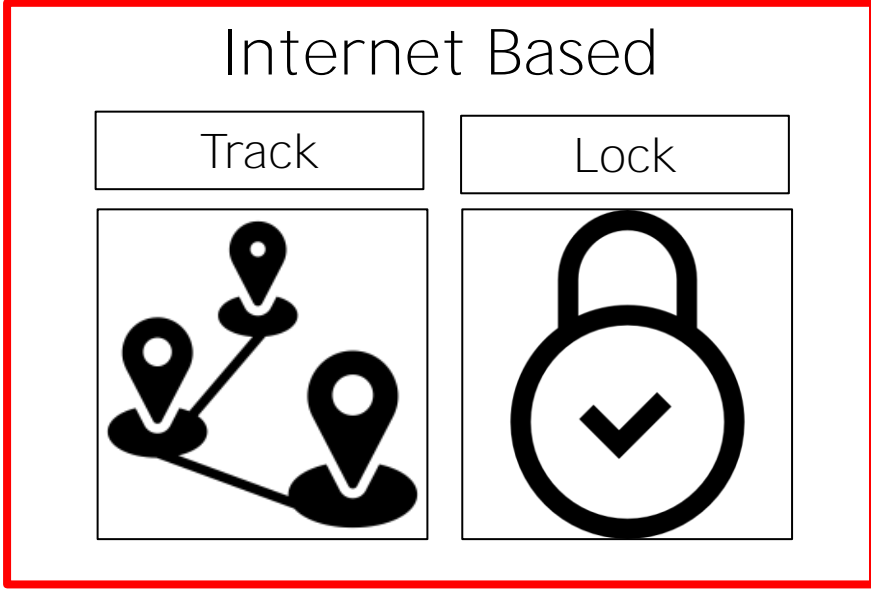


- ❖ Once the survey is complete, the measured data can be transferred to the office and checked prior to the surveyor leaving the site
- ❖ The drawing of CAD plans can be started much earlier
- ❖ Data forgotten to be taken to the site can be transferred saving an expensive and time consuming journey back to the office
- ❖ It is much easier and quicker to react to a design change - the new design can be immediately sent to the user in the field

The 4G modem allows the instrument to connect to the Internet and use functionality related to the Internet - such as the ability to transfer data between the field and the office, or between users in the field.

# Theft & Lock Function

🌐-Tracking and theft deterrence device



# Leica FlexLine Series: FlexField Software



TS03

TS07

**Leica FlexField**

Intuitive, easy-to-use and familiar



Guided workflows, learning onsite possible



Easy to understand graphics and icons



Pinpoint EDM: measure to prisms and any surfaces



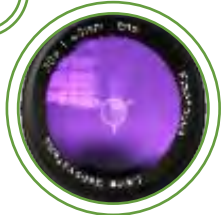
# Characteristic Of TS10



Endless Drive



IP 66



Fine Focus  
Telescope



Leica  
Captivate

Auto Height  
(Standard)



4G Modem  
(Optional)



The Most Accurate Total Station With

- 1mm + 1.5ppm

Angular Accuracy

- **1"/2"/3"/5"**



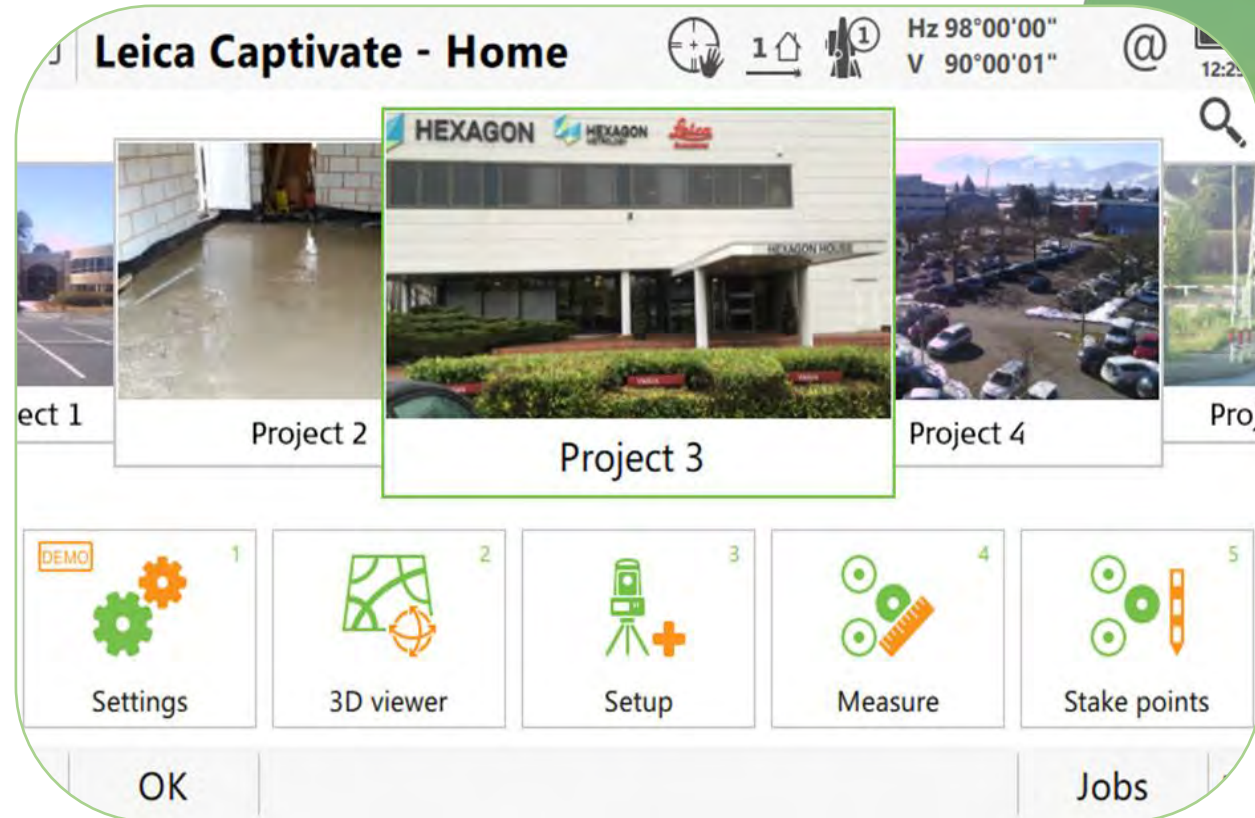
LOC8  
(Optional)

# Field Software - Leica Captivate

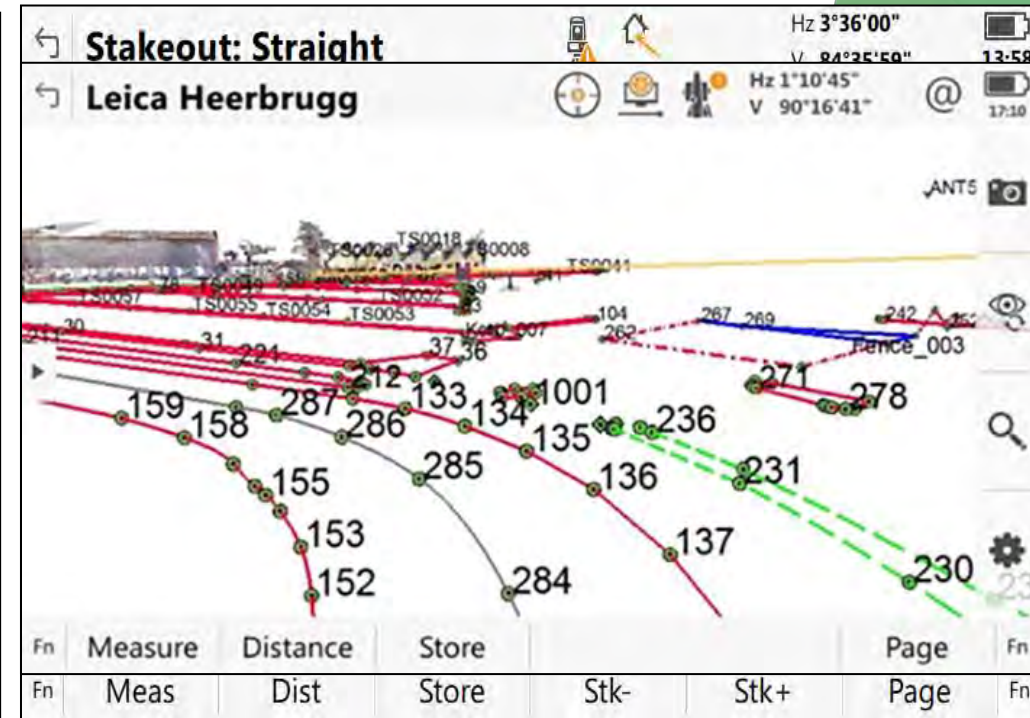
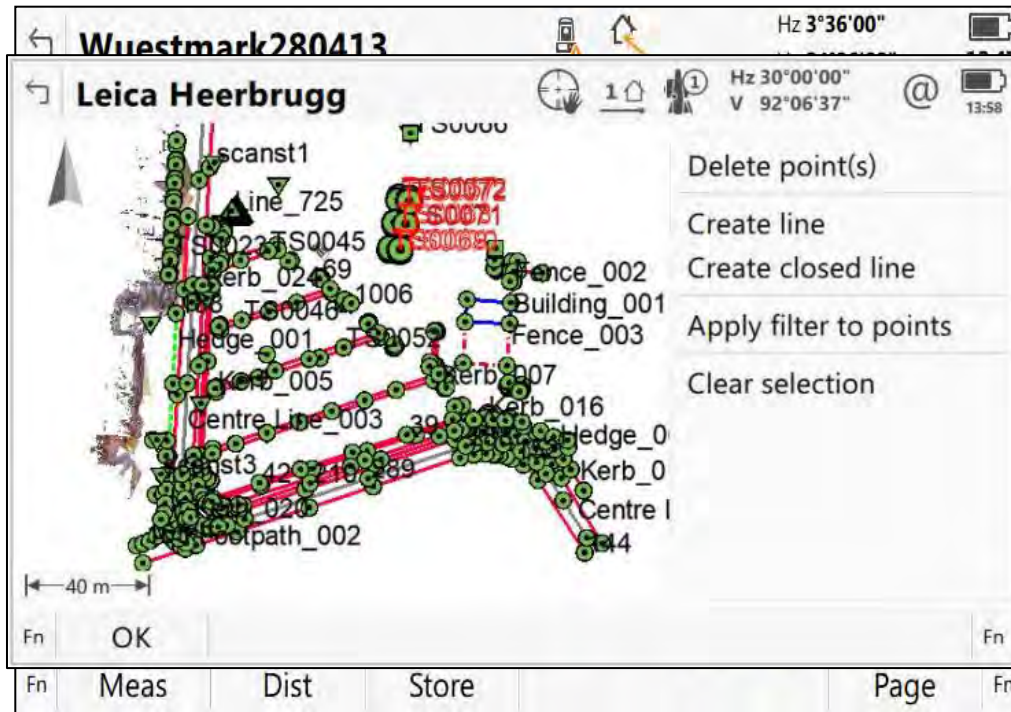
Be **Captivated**



1. User friendly interface and simple work flow
2. 3D viewing for more complex data / design
3. Adjust the app icon to wherever you want



# Stunning 3D Viewer



- All data can be seen in 2D and 3D in all apps

- **Variety of ways for the user's Simply** pan, zoom and rotate the 3D viewer



# Powerful Coding & Line work

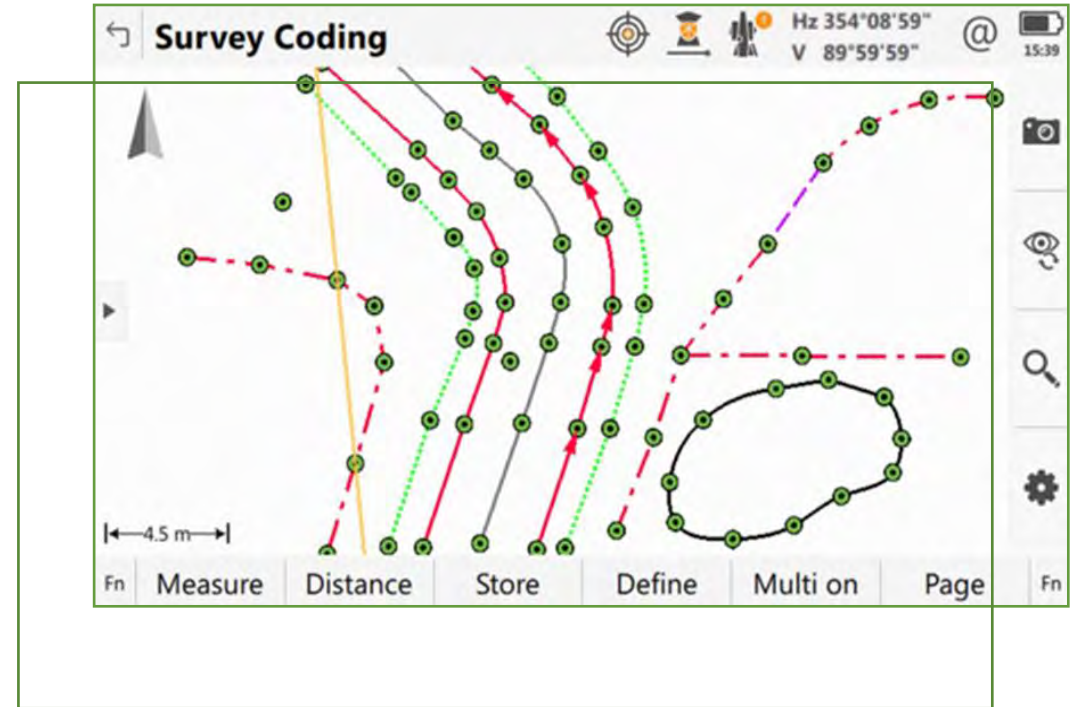
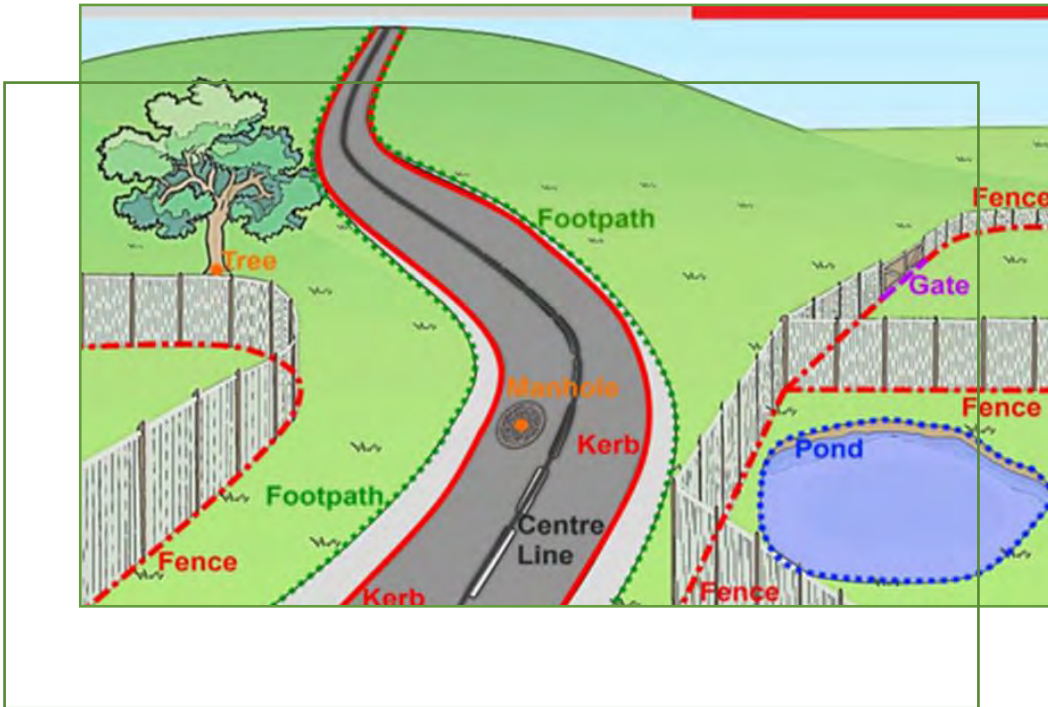
Be Captivated



Reality

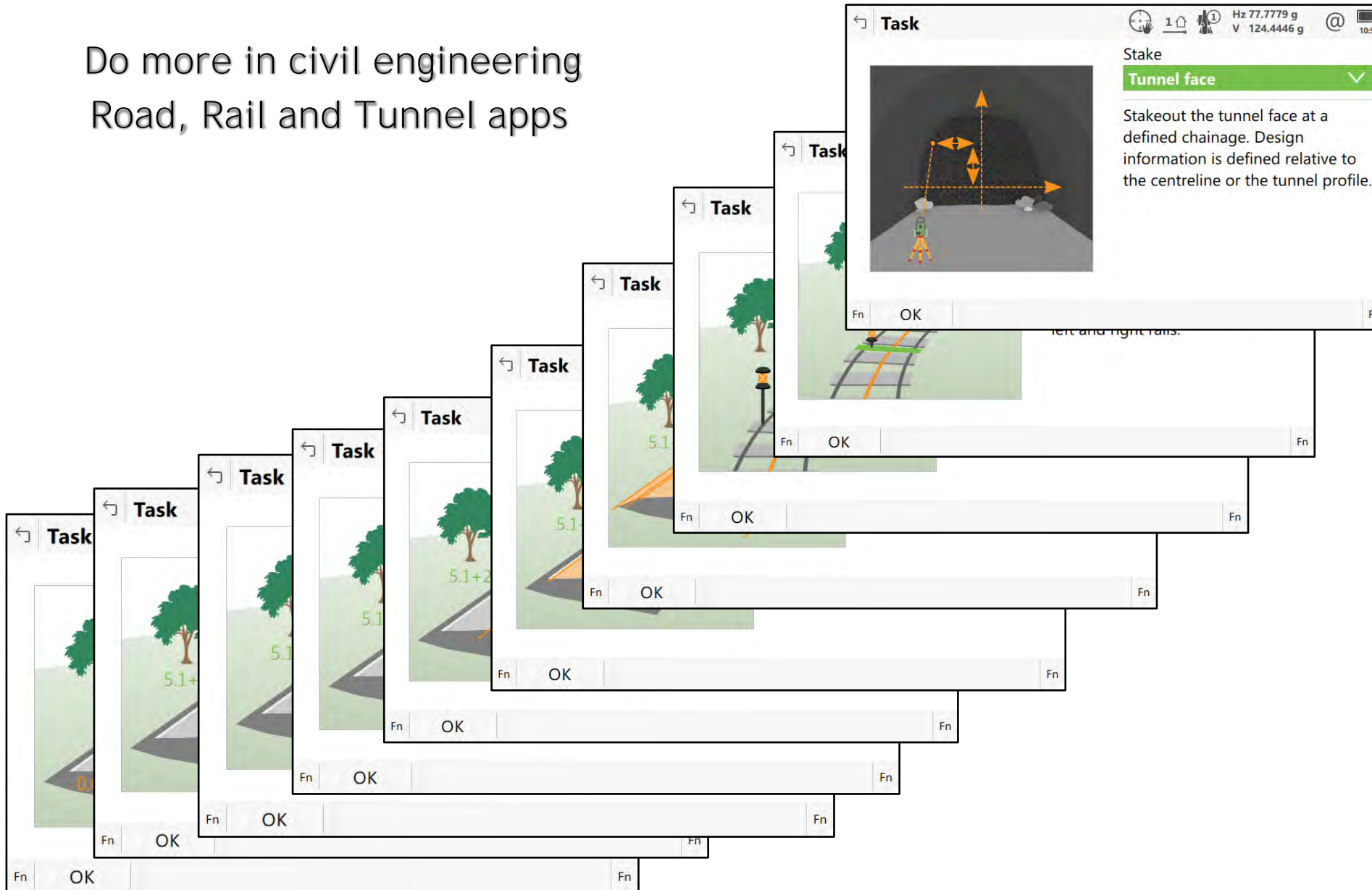


Easy Capturing



# Field Software - Leica Captivate

Do more in civil engineering  
Road, Rail and Tunnel apps



# Leica FlexLine Series: Captivate Software



TS10

**Leica Captivate**

The TS10 includes the ability to run 3<sup>rd</sup> party software

Tie into the modern 3D dataflow (3D views for more complex data/design)

3D viewer

A comprehensive application-based software package





# Leica Total Station - Durability

(End User Experiment)



Mining Survey (working in harsh environment)



Surveying under extremely cold condition

**Leica**  
**Geosystems**

- when it has to be **right**  **HEXAGON**

# Robotic Total Station TS16

World's first  
self-learning total station

**Leica**  
**Geosystems**

- when it has to be **right**



# What characterises an automated Total Station today?

Automation

Aiming

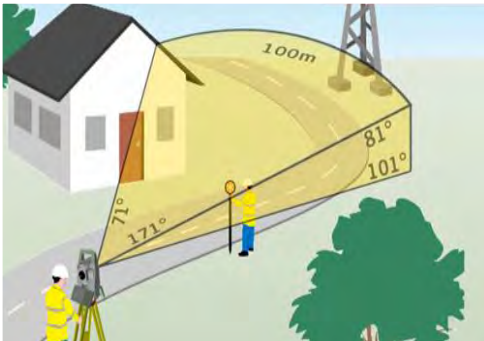
Lock

Search

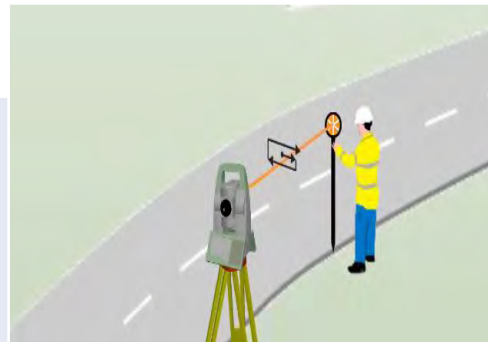
Lock

Distances

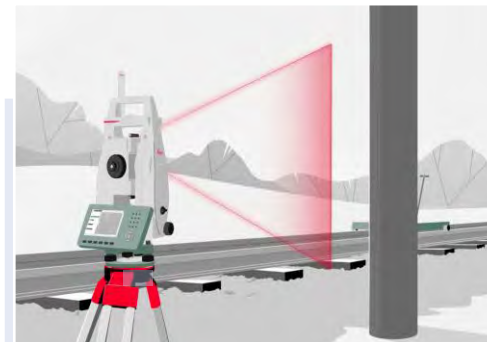
Re-Lock



Power Search Function



ATR Plus Function



DynamicLock Function



## Power Search - Introduction Video

See the advance technology of  
power search function

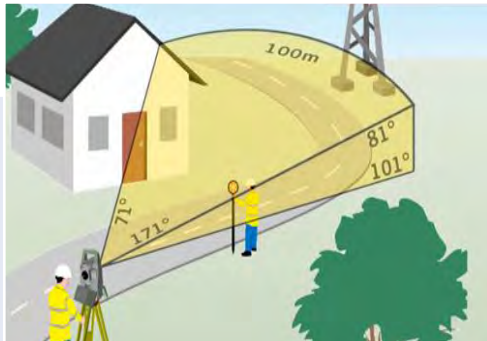
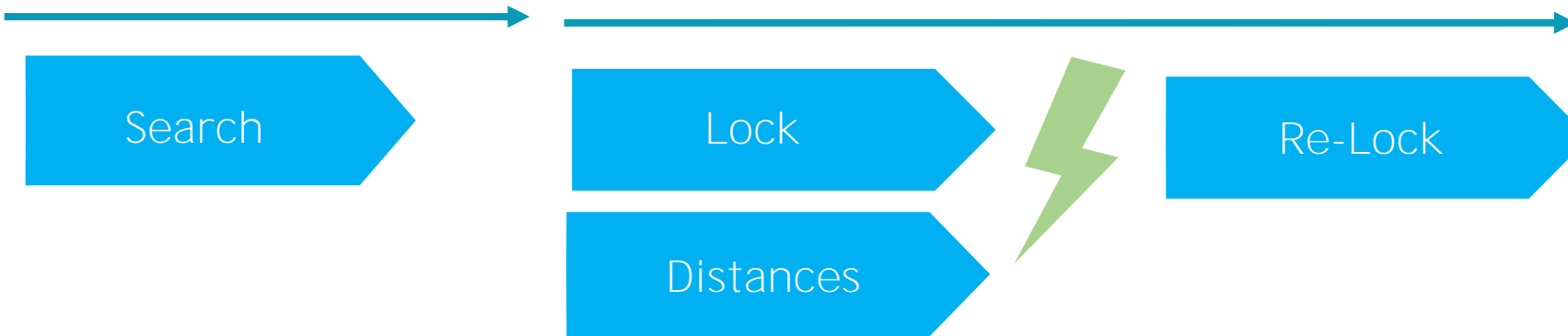
**How does it work?**

# What characterises an automated Total Station today?

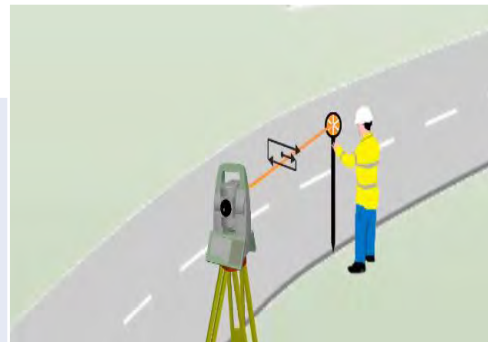
Automation

Aiming

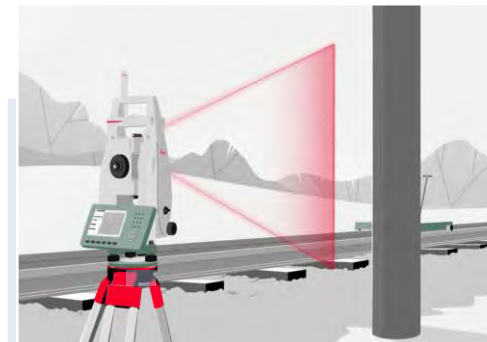
Lock



Power Search Function



ATR Plus Function



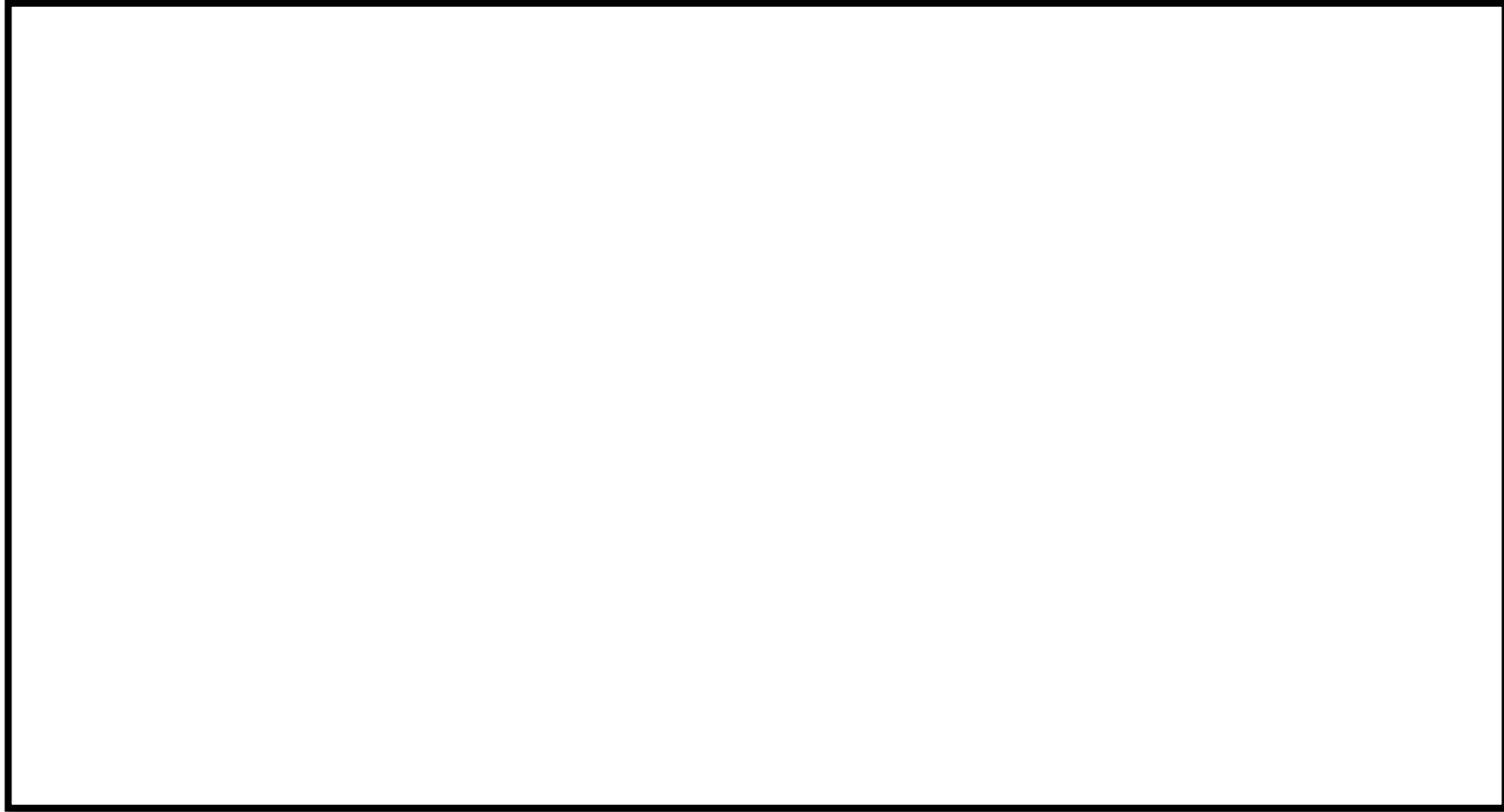
DynamicLock Function



## ATR Plus - Introduction Video

Reliable technology and image sensor ignore  
other disturbance object and make your work faster

# ATR Plus - Introduction Video



# Leica TS16 Total Station

ATRplus - self learning • Environmental conditions are learnt.



Sunny



Cloudy



Bad visibility



Rainy



Dusty



Good visibility





# ATR Plus

- Spot history • Ignore other prisms.



# What characterises an automated Total Station today?

Automation

Aiming

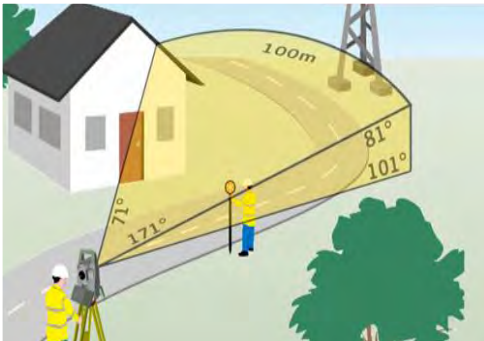
Lock

Search

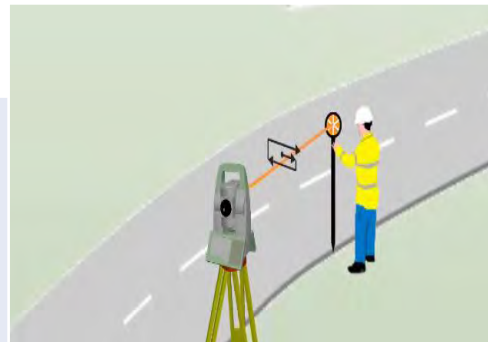
Lock

Distances

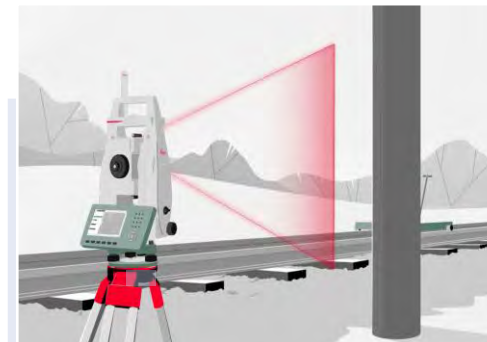
Re-Lock



Power Search Function



ATR Plus Function



DynamicLock Function

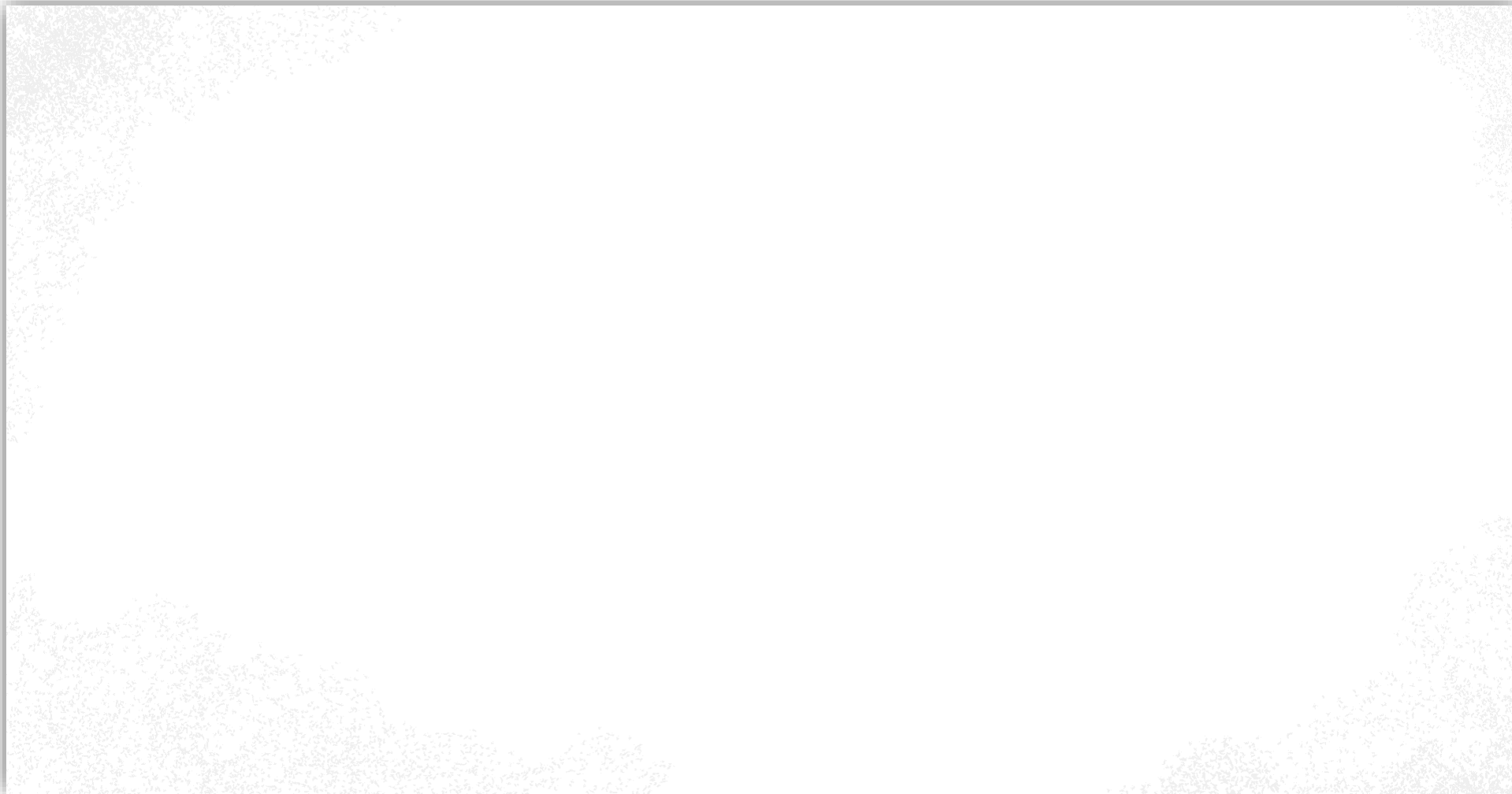
# DynamicLock - Self-learning Feature Video

ATRplus + PowerSearch



# DynamicLock - Self-learning Feature

ATRplus + PowerSearch



# Tight control loop for dynamic applications



TS15



Lock

TS16



When it has to be right

With the world's first

self-learning Total Station...





# After Sales Service Onside Training @ Yeywa Dam (Largest Hydrographic Dam in Myanmar)





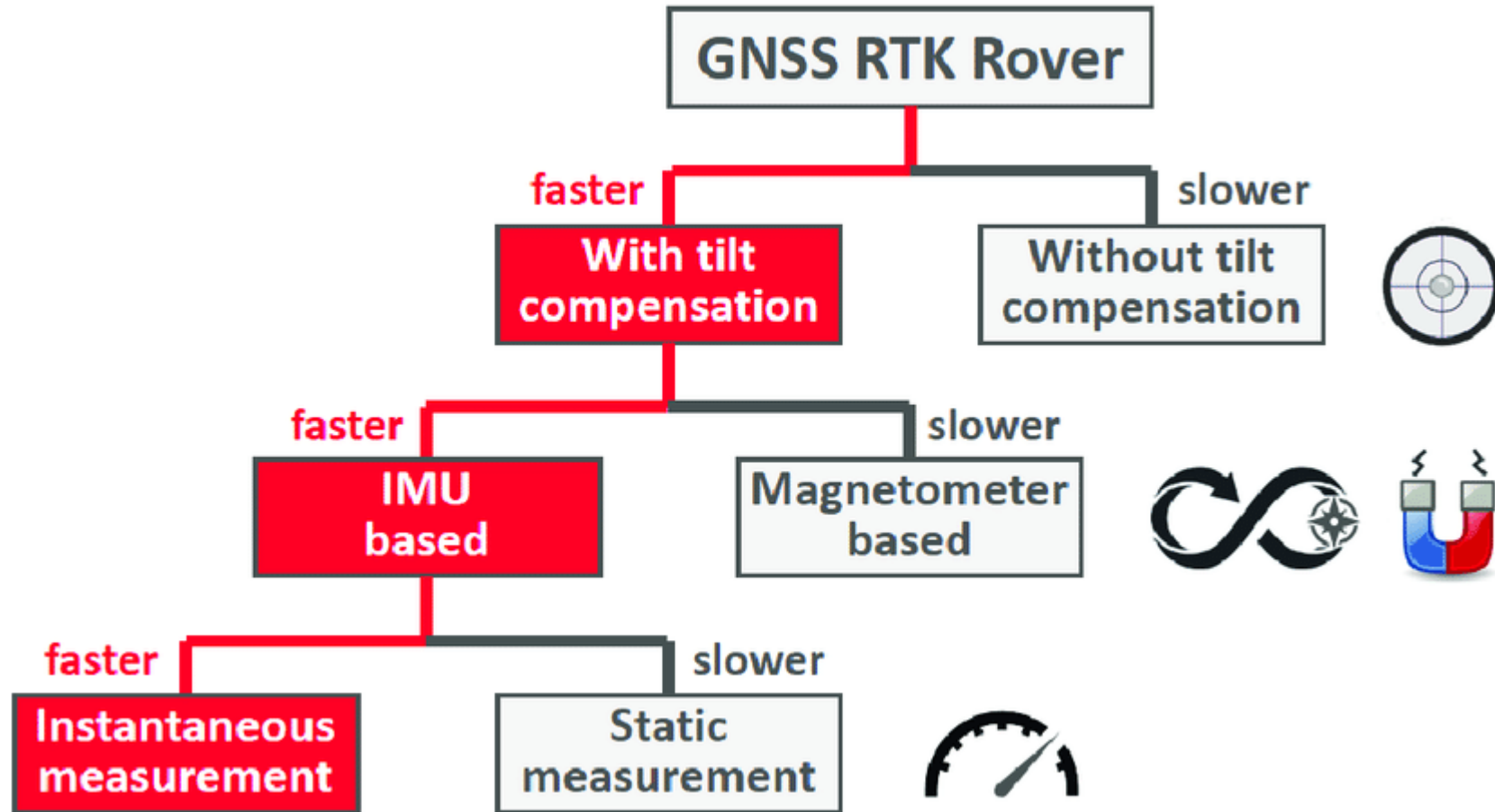
*Leica*

*Geosystems*

- when it has to be **right**

The World's **Fastest** GNSS  
RTK Rover GS18T

# Different between IMU based and Magnetometer





# Self-learning GNSS Sensor (Reliable Techno)

U A self-learning GNSS sensor adapts to the conditions in which the sensor is being used.

U The best available satellite signals and the best available correction data is chosen automatically.

U This ultimately results in the best possible position and accuracy regardless of the conditions.

# The World's first **tilt**-compensation function ( calibration free) Video

See how convenience and easy to measure  
the impossible area before

# The World's first tilt-compensation function ( calibration free)



Leica





# Measuring Engines

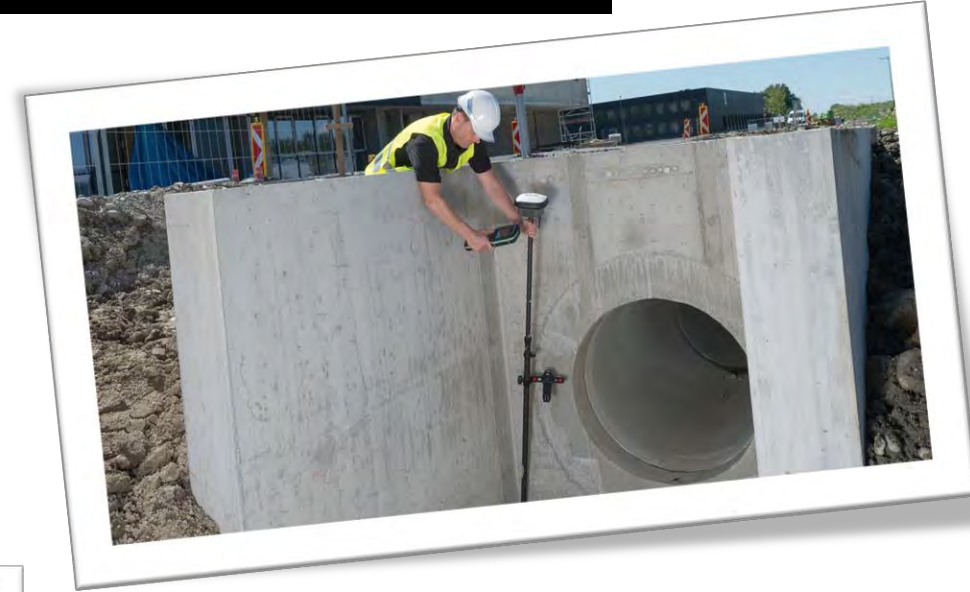


Beidou

# Unique Advantages

To improve productivity and user experience of high-precision RTK positioning, the Leica GS 18T offers the following unique advantages;

- Free from on-site calibrations
- Immune to magnetic disturbance
- Applicable at large tilt angles
- Self-learning GNSS Sensor
- Heading-aided 3D Visualization



# Leica Laser Distance Meter



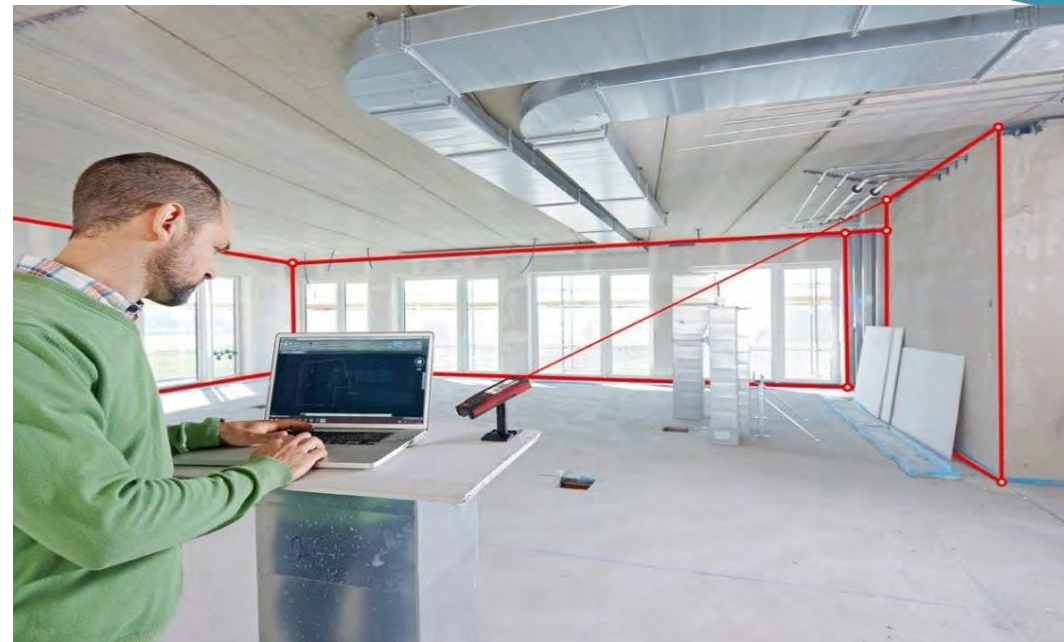
**S910P**



**D810P**



**Indoor Laser Distance Meter**







Trust only our experience and passion  
**Amigos**  
International Co., Ltd.



**Leica**  
Geosystems





Your authorized Distributor of

**GEOMAX**

You no longer have to  
compromise quality  
for price

**HEXAGON**  
GEOSPATIAL



Works when you do



**SOUTH**  
Target your success







**We are ready to serve for you..**



Installation & Training



Services & Calibration



Services Center



Water & Environmental  
Laboratory



Technical Support



Land Survey Services



Rental Services



# After Sales Service Onside Training







-When it has to be **right**

# Thank You



HEXAGON