



3D Disto Software  
for Windows®

# Leica 3D Disto Tutorial Ships and Boats



- when it has to be **right**



# Leica 3D Disto on Ships and Boats

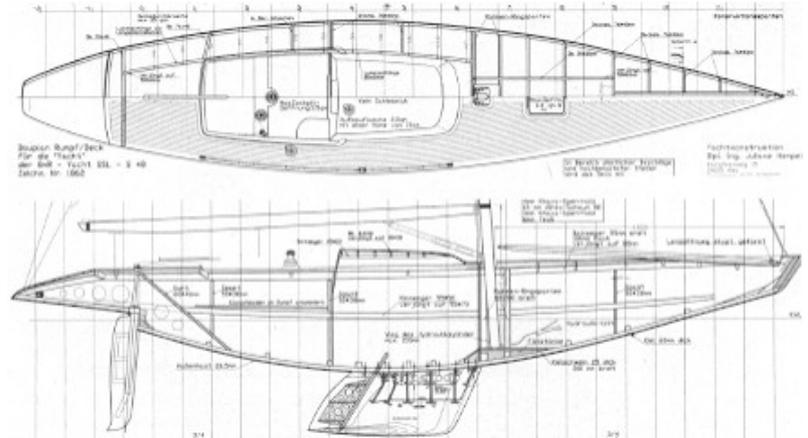
## Content

The exceptional and individual geometry of ships and boats makes high demands on installations and measurements.

Get a general idea of the Leica 3D Disto's competent answers to a few difficult measurement jobs relating to...

- Curved surfaces & difficult geometries
- Measurements on rolling ships and boats (waterborn)
- Measurements on tilted ships and boats (ashore)
- Scans
- Covers and sails

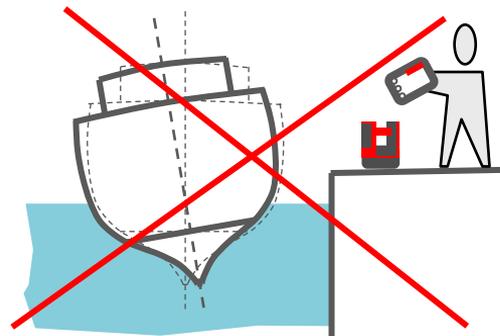
Some photos and plans with kind permission of <http://martin-yachten.de>



# Leica 3D Disto on Ships and Boats

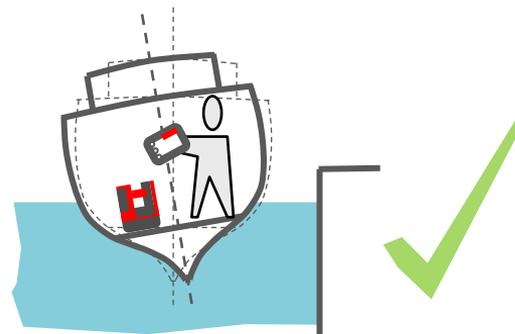
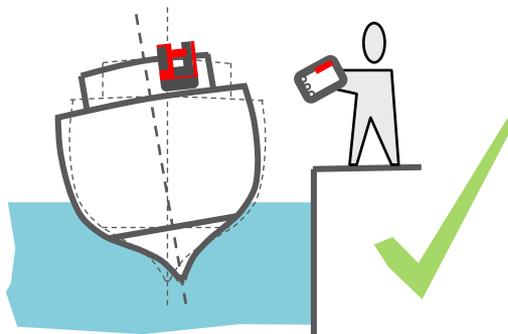
## Position of the 3D Disto

→  
You would not be able to point the laser to a rolling object. Even if you would, results would be inaccurate.



Step 1:

Put the 3D Disto on the boat



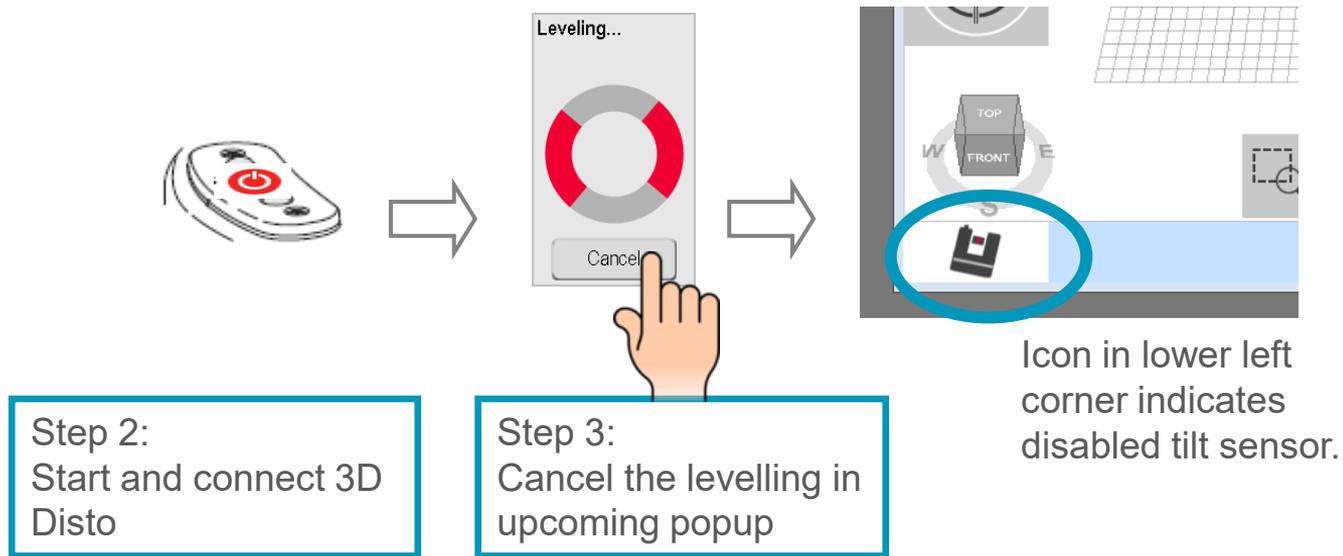
- when it has to be **right**

**Leica**  
Geosystems

# Leica 3D Disto on Ships and Boats

## Disabling the Tilt Sensor

If the underground is not stable, the tilt sensor can't level the 3D Disto and must be disabled:



Alternatively disable the tilt sensor in Menu>Device>Tilt Sensor

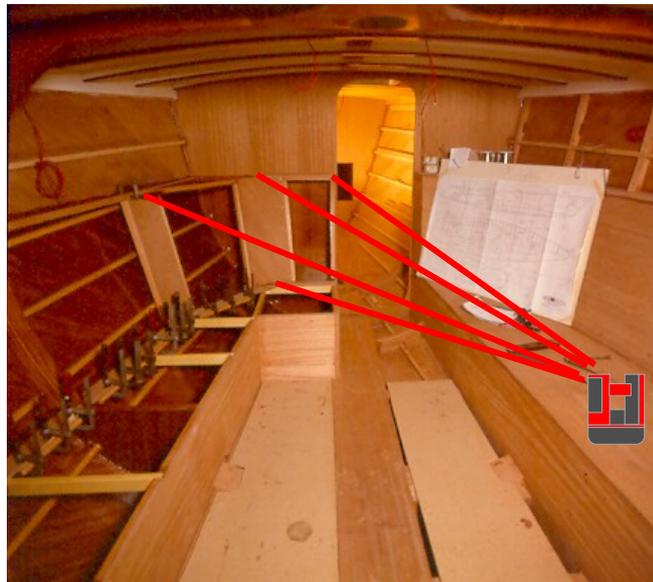
# Leica 3D Disto on Ships and Boats

## Measurements

### Step 4: Measurement

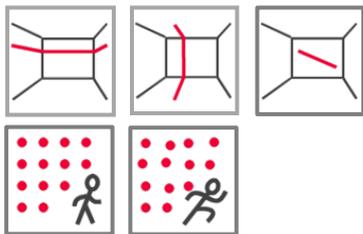
Measure all points of interest like you are used to do - target and measure manually or let the 3D Disto do the scans. Further helpful tools of the application:

- CAD tools (line intersection etc.) for inaccessible points
- photo function for documentation
- immediate results



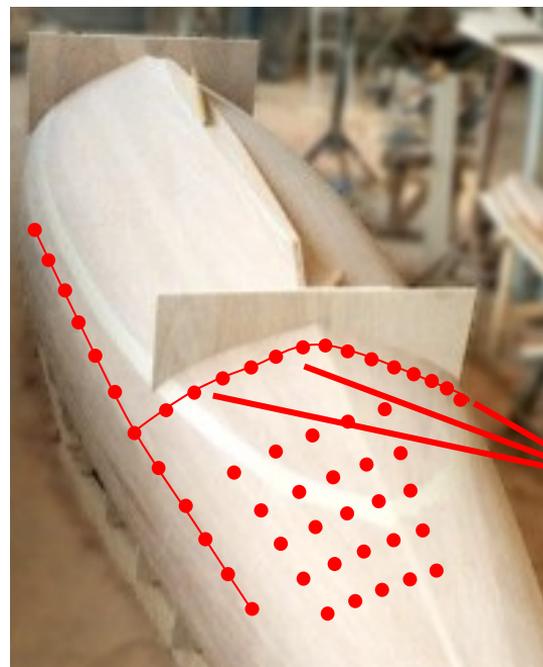
# Leica 3D Disto on Ships and Boats

## Scans



Execute line scans or surface scans if necessary.

- individual scan intervals
- scans run automated
- accuracy = 1mm/10m



# Leica 3D Disto on Ships and Boats

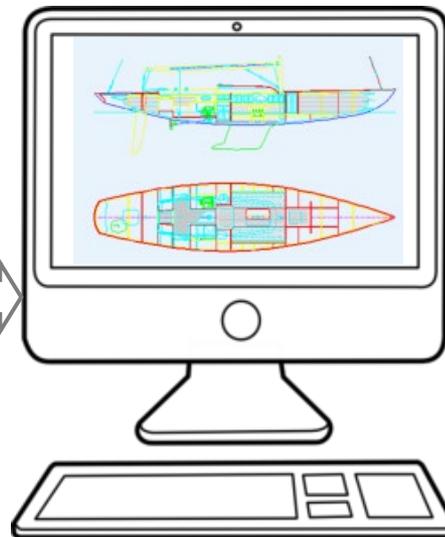
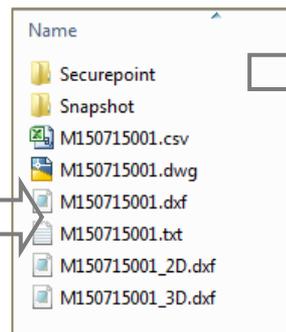
## Data Export

Step 5:  
Save and export the data

Press Home key and save the measurement.

Select the measurement in the File Manager and press EXPORT key.

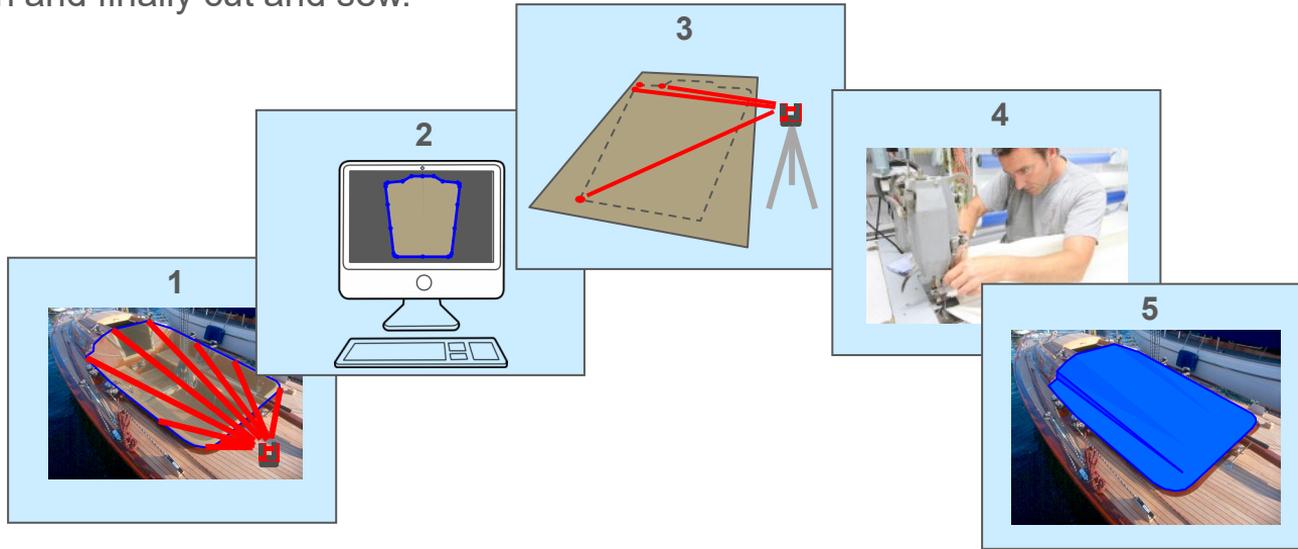
Your measurements and photos are in the DATA folder on your desktop now.



# Leica 3D Disto on Ships and Boats

## Option: The cover

In case it's impossible to work with templates - use the 3D Disto's performance! Measure all points of interest for the cover, design it on CAD, project it on the carpet with the 3D Disto's PROJECTOR application and finally cut and sew.



# Leica 3D Disto on Ships and Boats

## Worth knowing about the Tilt Sensor

The Tilt Sensor is a high-tech component of the 3D Disto. It compensates a tilt of the device up to  $3^{\circ}$  .

On the following pages advanced users find helpful advices how to measure regardless tilts over  $3^{\circ}$  or unstable undergrounds.

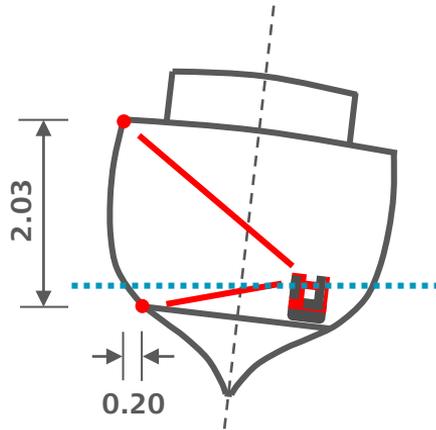




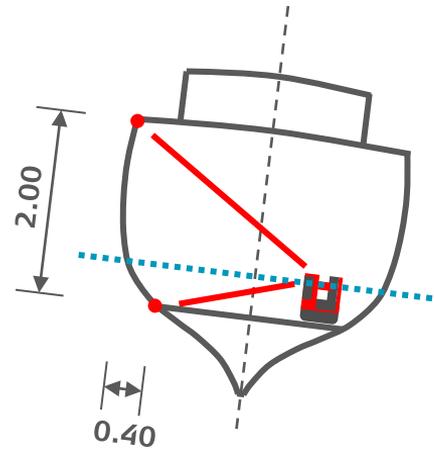
# Leica 3D Disto on Ships and Boats

## Worth knowing about the Tilt Sensor

The state of the Tilt Sensor has impact on dimensions and heights:



Tilt Sensor ON

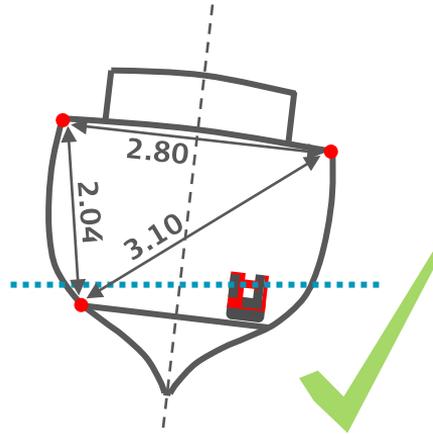


Tilt Sensor OFF

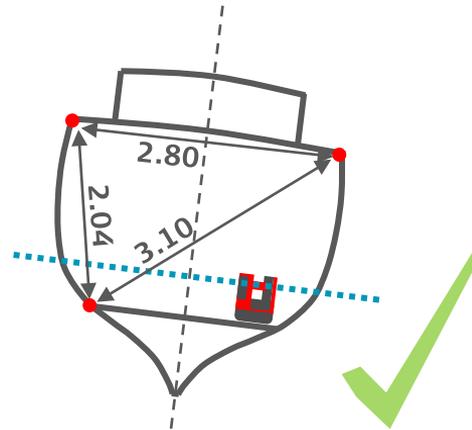
# Leica 3D Disto on Ships and Boats

## Worth knowing about the Tilt Sensor

No matter if the Tilt Sensor is ON or OFF: all the tie distances are error-free  
→ 3D export data are correct!



Tilt Sensor ON

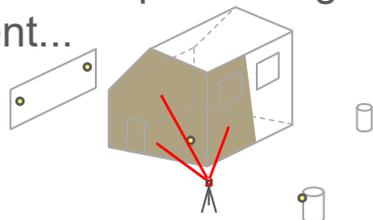


Tilt Sensor OFF

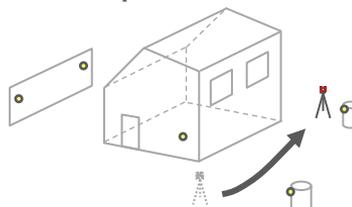
# Leica 3D Disto on Ships and Boats

## Worth knowing about the Tilt Sensor

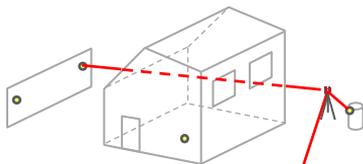
Under normal conditions (stable underground, Tilt Sensor ON) the "Location" tools help to change the 3D Disto's position during a measurement...



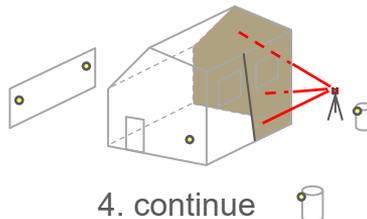
1. measure Secure Points and object (Secure Location)



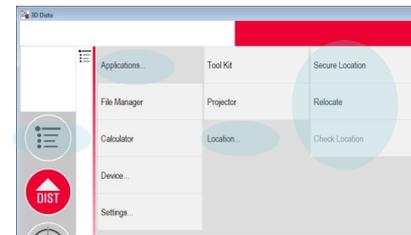
2. change position



3. measure Secure Points again (Relocation)



4. continue



...but Relocation doesn't work if the Tilt Sensor is OFF.

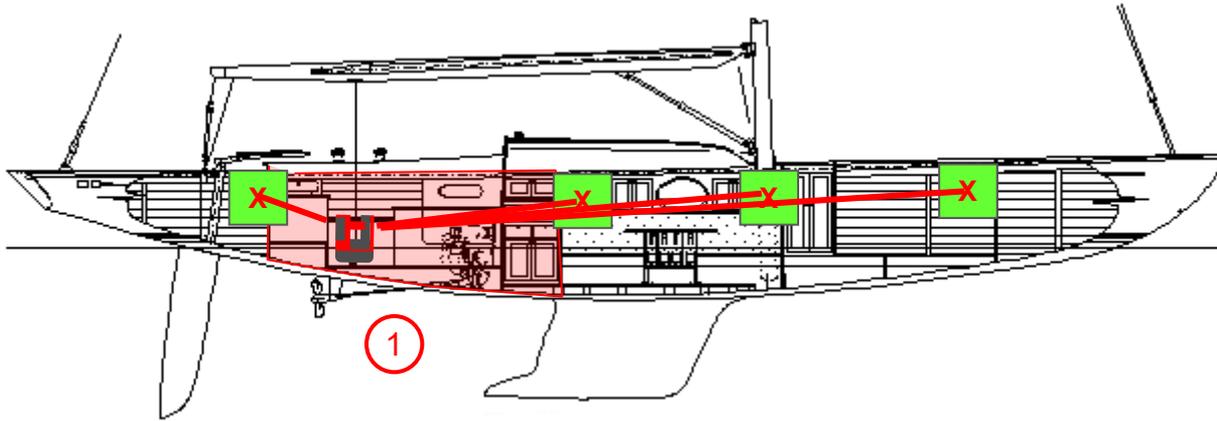
See next page for solution →

# Leica 3D Disto on Ships and Boats

Worth knowing about the Tilt Sensor

Tilt Sensor OFF

→ How to change the 3D Disto's position:



Step 1:

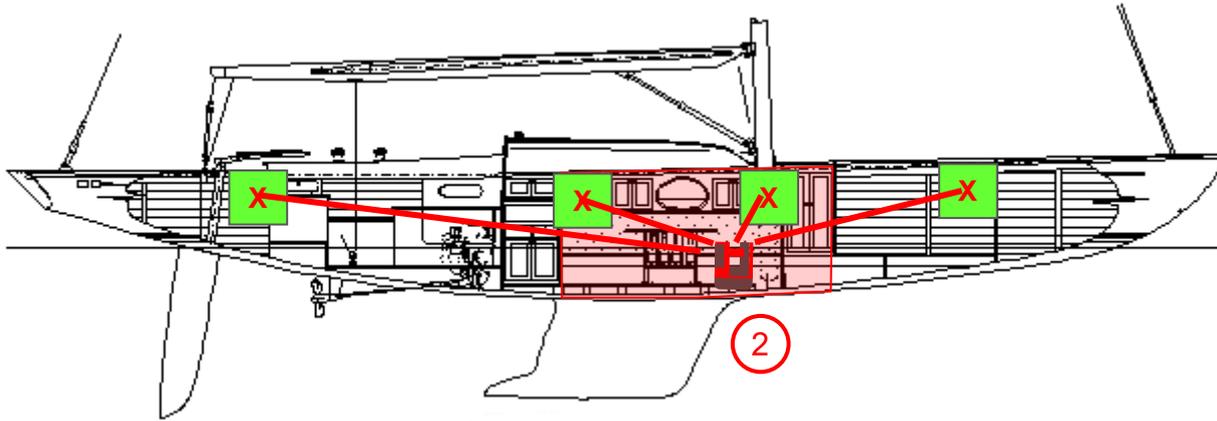
Measure all you need. Then mark some points all over the working area and measure them. Do not use Location tools. Save the file.

# Leica 3D Disto on Ships and Boats

Worth knowing about the Tilt Sensor

Tilt Sensor OFF

→ How to change the 3D Disto's position:



Step 2:

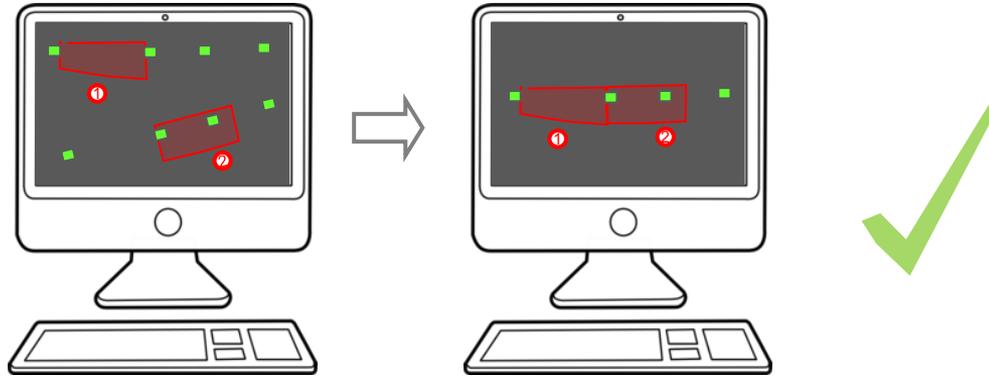
Change position of the 3D Disto. Start a new measurement with empty screen, measure all you need and measure 3 or more of the marked points. Do not use Location tools. Save the file.

# Leica 3D Disto on Ships and Boats

## Worth knowing about the Tilt Sensor

Tilt Sensor OFF

→ How to change the 3D Disto's position:



Step 3:

Export both files and import to your CAD system. Use the marked points to coincide both measurements.

# Leica 3D Disto

## Registration at myWorld

Register your 3D Disto on myWorld for:

- warranty extension
- license keys
- more tutorials
- free software updates
- support
- manuals

[www.myworld.leica-geosystems.com](http://www.myworld.leica-geosystems.com)

