

# TachyCAD Topography

TachyCAD is a full system solution for CAD driven property surveys. The measurement results of tachymeters and GPS/GNSS devices are transferred directly into geometry onsite. According to the user's requirements ground surveys, position plans, views or 3D objects are generated as an AutoCAD drawing directly onsite. TachyCAD is a plug-in application working directly within the AutoCAD or AutoCAD LT environment and is offered in four vertical solutions: TachyCAD Building Surveying, TachyCAD Plant, TachyCAD Archaeology and TachyCAD Topography.



## The tachymeter acts as the mouse pointer

TachyCAD enables the wireless transfer of measurement data from a tachymeter to a notebook. When triggering a measurement, the 3D coordinates of the measured point will automatically be available for drawing and constructing in AutoCAD, similar to clicking in AutoCAD with the mouse or entering the data manually. The coordinates of RTK-GPS systems may also be transferred wirelessly to AutoCAD.

## Robotic station

You may work in a one-man operation with TachyCAD and a suitable motorized tachymeter. Equipped with a tablet PC and reflector pole, a user can walk by the target points and triggers the measurements. The tachymeter follows the reflector automatically.

## Optimized work processes in detail

TachyCAD supplements AutoCAD with an extensive command palette especially suited for the survey of buildings. The basic principle of all commands is always, to get completed illustrations with as few entries and measurements as possible.

## Object data management with structure

In addition to the CAD plan, an object data list may be maintained. In optimized work processes graphical objects in the drawing may be linked to object data within a structure view. Data base compatible structure mappings may be created from CAD Graphics, for example for the green space cadastre. The data may be exported into GIS or other databases without any problem.



## Advantages

- Missing and inconsistent measuring values are recognized instantly on-screen.
- Generating the complete plan in the field
- Only minimal rework at the office
- Complete AutoCAD function palette available
- May be combined with other AutoCAD extensions (e.g. Autodesk Civil 3D)
- time savings due to simultaneous measurement, construction and recording of object data.
- Free selection of hardware and measurement devices
- Free selection of the measurement procedure: surveyor's tape, tachymeter or GPS
- Realistic automated solutions for typical tasks
- Support free of charge

## Fields of operation

TachyCAD Topography is suitable for digital ground survey or property documentation outdoors. The results are topographic position plans in optional scales and various formats. In addition to graphical documentation in 2D and/or 3D, supplementary object data may be recorded intelligently, e.g. for GIS systems.

kubit GmbH has been developing software for surveying and documentation since 1999. Serving a broad group of users, these field proven solutions combine sophisticated measurement technologies with established CAD functionality.

**From real world to CAD.**

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## Requirements

Platform	AutoCAD and AutoCAD vertical products such as Civil 3D, Architecture or Map 3D versions 2010 and up. Please contact the kubit sales department when using older Autodesk products.
Operating system	Dependent on the AutoCAD version used.
Hardware requirements	Notebook, equipped for mobile use onsite, especially with good battery power. Performance parameter as recommended by Autodesk for the respective AutoCAD version. Integrated Bluetooth is recommendable but not a requirement.
Needed measurement technology	Customary tachymeter of the common manufacturers, e.g. Leica, Trimble, Topcon, Sokkia, Nikon, Pentax and other. In order to settle the suitability of your tachymeter for TachyCAD please contact kubit GmbH.

## The most important functions – feature list

The following list gives you an overview on the most important functions.

### 3D coordinates from tachymeter measurement values

- Interface to all common tachymeter types
- Calibrating, defining and navigating (searching) control points
- Position determination with statistical adjustment, different geodetic orientation procedures
- Indirect determination of hidden points with a special measurement pole („hidden point pole“)

### Measurement and construction tools excavation plan

- Universal measurement tools for contours: polylines with curves and straight lines, wall runs, calibrating several polylines parallel, round and square contours, arches, steps, plumbing measuring point on line, settling dimensions on line
- Construction tools:
  - Extending, expanding, cropping lines 3D or horizontally and spatially joining for 3D lines, turning cross hairs
  - Determining range distances
  - Defining UCS for vertical views and slope planes
  - Calibrating heights above datum: absolute and relative height reference, subsequent change of reference heights, adaptation of symbol and face of the height blocks

### Commands for the plan completion and design

- Plan analysis: finding of small gaps, line remains and double lines
- Flattening drawing: reducing the measured 3D data to a clean 2D plan
- Inserting coordinate frame
- North arrow
- Symbol palette with blocks and line types typical for position plans

### Recording object data with hylasFM

- Software for the recording and data base compatible structuring of supplementing alphanumeric data
- Define contents to be recorded yourself and save them as structure template
- Automatic calculation of areas in consideration of enclave polygons
- Clear display of data in a structure view, direct linking of the objects within the drawing
- Manifold export functions: Excel and ASCII tables, ESRI

Shape files, XML, HTML, AutoCAD blocks

- Visualization of the drawing according to designated object attributes (e.g. different color hatching according to type of use of the area)
- Secure and efficient method for data recording: attributes with definable selection lists, fill in control, definition of reasonable default values, mass processing with the help of an object collector

### TachyCAD programming interface

- User adaptations and external applications have full access to the measurement functions.

### Geodetic methods

- Stake out of points from the drawing on site
- Net adjustment for a high accuracy for large-scale projects
- Helmert transformation for subsequent joining of plan sections
- Alternative measurement methods for situations with disadvantageous measurement conditions: intersection, plane intersection

### GPS

- Direct adoption of GPS coordinates, which were determined in the Real-time kinematic procedure, connection to the Trimble software TSM Pipe

### Miscellaneous

- Import of coordinate lists from ASCII tables, export of coordinates into ASCII tables
- Detailed manual with tutorial
- Different license models
- Flexible adaptation of all used symbols (blocks), layers, fonts and descriptions

### Trial versions

You may test TachyCAD free of charge and without obligation. You will find further information and a request form on the webpage [www.kubit-software.com](http://www.kubit-software.com). Or send us an e-mail and/or give us a call.

