

THE CARD/1 SYSTEM

CARD/1 enables you to solve any task in the field of civil engineering. Working with professional software designed and developed by a single company, any project is finished quickly and efficiently and with maximum quality. You and your project are the focus of all our endeavours. The software allows you to work within one environment across multiple modules, enabling you to view your planning data from many different angles.

For further information visit www.card-1.com

SURVEYING MODULES

Point Management

Point management, import and export of points.

Graphic Fieldbook

Control of and import measurements from total stations (tachometers), evaluate measurements and log object information, setting-out. Fieldwork-optimized user guidance. Requires Point Management module.

Surveying

COGO, evaluate measurements, either dialog-based or in batch mode, transformations, setting-out calculations. Requires Point Management module.

Network Adjustment

Combined plan and height network adjustment with statistical analysis. Requires Surveying module.

Levelling

Supports engineering and precise levelling, cross-section measurements, data import from electronic levels.

Tacheometer Transfer

Data exchange between electronic fieldbooks (Trimble, Zeiss, Wild, Topcon, Geodimeter) and CARD/1, data pre-processing for Surveying.

Point Cloud Management

Point cloud import (e.g. laser scanner data). Coloured display in the base map, in longitudinal profiles and cross-sections. Create and output drawings to any common plotters or printers. Requires Hybrid Drawing Editing module.

Point Cloud Evaluation

Generate longitudinal profiles, cross-sections and terrain points from point clouds. Additional commands in the cross-section designer to access point cloud data in cross-sections. Requires Point Cloud Management module.

BASE MAP MODULES

Base Map

On-screen construction, editing and management features for points, lines, texts, symbols and other data in the plane. Generate slope hachures automatically, area calculations, create base map drawings. Requires Point Management module.

Base Map Generator

Automatically generate base map data (e.g. lines) from survey points. Requires Base Map module.

Raster Image Editing

Import and process raster data, e.g. scanned-in maps. Requires Raster Image Display module.

Raster Image Display

Display CARD/1 raster images in all base map-oriented modules, e.g. Base Map or Alignment Design.

Raster Image Digitizing

Digitize points, areas and distances on-screen based on raster data. Requires Raster Image Display module.

Digitizing

Digitize points, areas and distances.

GIS MODULES

Road Cadastre

Manage classified road networks. Log and evaluate the road structure, the road furniture and the road conditions. Evaluations in lists or as graphs.

Real Estate Management

Log, document and manage local real estate with leases and use contracts, evaluation attributes and user-defined entries. Evaluations in lists or as graphs.

Railway Cadastre

Log, document and manage railway facilities.

CARDBase

Base module to log and manage any type of attribute data.

DTM MODULES

Digital Terrain Model

Digital terrain models with triangle links, on-screen editing, automatic TIN generation, cross-sections, longitudinal profiles, contour lines and drawing output.

DTM Volumes

Volumes on horizon, prismatic volume calculation (according to the German guidelines REB 22.013), water volumes, fill curves. Requires Digital Terrain Model module.

DTM Intersection

Calculate the cut and fill volumes between two digital terrain models together with the base areas, the surface areas and the intersection polygons. Requires Digital Terrain Model and DTM Volumes modules.

ALIGNMENT MODULES

Alignment Management

Alignment management, import and export alignment master points (various formats are supported).

Alignment Evaluation

Evaluate and analyze alignments. Output as lists. Alignment setting-out. Requires Alignment Management module.

Alignment Design

Design road alignments, intersections and roundabouts on-screen, run constraining point analyses. Requires Alignment Management and Alignment Evaluation modules.

Alignment Drawing

Create sophisticated alignment drawings with flexible annotation features, carriageway edges, gradient changes etc.

Automatic Alignment

Calculate alignments and their basic elements from sets of points. Requires Alignment Management, Alignment Evaluation and Alignment Design modules.

Swept Turning Path

Calculate swept turning paths based on the vehicle track method, incl. vehicle library. Display in the base map, simulation of the manoeuvres, various evaluation functions.

Route Simulation Road

Visualize and animate road designs based on cross-sections in 3D. Requires Cross-Section Editing module.

Route Simulation Rail

Visualize and animate railway route designs in 3D for checking and presentation purposes. Requires Cross-Section Editing module.

Sight Distances

Calculate existing sight distances, run vertical alignment-based and spatial analyses, display in the graphics and output to drawings. Requires Vertical Alignment Design and Cross-Section Design modules.

VERTICAL ALIGNMENT MODULES

Vertical Alignment Design

Design vertical alignments on-screen, run constraining point analyses, single evaluations or evaluations in lists.

Profile Drawing

Create sophisticated vertical alignment drawings with vertical alignments, ground profiles, flexible annotation features, curvature, cant gradient, sight distance or other strings.

Vertical Alignment Transformation

Transform vertical alignments onto parallel alignments, calculate dependent vertical alignments.

Sight Distances

Calculate existing sight distances, run vertical alignment-based and spatial analyses, display in the graphics and output to drawings. Requires Vertical Alignment Design and Cross-Section Design modules.

Surface Optimization

Generate an optimized and true-to-terrain vertical alignment automatically for 'overlay' road resurfacing. Requires Vertical Alignment Design module.

Cross-fall Generator

Generate an optimized and true-to-terrain cross-fall automatically. The cross-fall generator takes alignments, vertical alignments, speed strings and various other parameters into account. The cross-falls are calculated according to the applicable guidelines.

CROSS-SECTION MODULES

Cross-Section Editing

Manage and edit cross-sections on-screen. Import and export cross-sections.

Cross-Section Design

Cross-section designer, surface elevation list. Requires Cross-Section Editing module.

Volumes from Cross-Sections

Calculate volumes from cross-sections (according to the German guidelines REB-VB 21.003 and 21.013). Requires Cross-Section Editing module.

Cross-Section Drawing

Create sophisticated cross-section drawings with individual sheet positioning, flexible annotation features and user-definable layouts.

Cross-Section Transformation

Transform cross-sections from one alignment onto another alignment.

Cross-Sections from Points

Calculate cross-sections and longitudinal profiles from points, e.g. from tachometric surveys.

Cross-Sections from Lines

Calculate cross-sections and longitudinal profiles from lines of the Base Map system.

Base Map from Cross-Sections

Create points, lines and slopes from cross-sections in the plane.

Sight Distances

Calculate existing sight distances, run vertical alignment-based and spatial analyses, display in the graphics and output to drawings. Requires Vertical Alignment Design and Cross-Section Design modules.

RAIL MODULES / RAIL FEATURES

Alignment Design Rail

Additional features to design railway alignments on-screen with rail-specific transition curves, switches, cants and switch elevation calculations. Requires Alignment Design module.

Alignment Drawing Rail

Additional features to draw and annotate track alignments and switches according to the guidelines of the German Federal Railways. Requires Alignment Drawing module.

Vertical Alignment Design Rail

Additional features to design vertical alignments on-screen with rail-specific curvature and cant strings. Requires Vertical Alignment Design module.

Profile Drawing Rail

Additional features to draw and annotate railway-specific longitudinal profiles with curvature and cant strings. Requires Profile Drawing module.

Cross-Section Design Rail

Additional features to design railway-specific cross-sections. Requires Cross-Section Design module.

Cross-Section Drawing Rail

Additional features to draw and annotate railway-specific cross-sections. Requires Cross-Section Drawing module.

Surveying Rail

Output all results and lists with an increased accuracy. Requires Surveying module.

Route Plan

Create route (track marking) plans for single and double-track lines.

Switch Elevation Plan

Create switch elevation plans.

Route Simulation Rail

Visualize and animate railway route designs in 3D for checking and presentation purposes. Requires Cross-Section Editing module.

Vertical Alignment Builder Rail

Generate an optimized and true-to-terrain vertical alignment for railway design. Requires Vertical Alignment Design Rail module.

Maglev

The module fulfils the requirements of the route design guidelines for maglev trains as well as current design guidelines: calculation and evaluation of sinusoidal curves in plan view and for cross-fall, calculation of special switches, vertical alignments with circular curves and clothoids, track support calculations, generation of test reports on vehicle dynamics and calculation of track supports along the three-dimensional curve.

Vehicle-dynamics Checks

Check the track geometry according to the applicable guidelines, examine the speeds. Requires Alignment Design Rail module.

Railway Cadastre

Log, document and manage railway facilities.

COST CALCULATION MODULES

Cost Calculation AKS

Calculate and output the costs according to the German AKS guidelines; with cost catalogue.

Cost Calculation RAB-ING

Calculate the costs for structures planned according to the German RAB-Ing (formerly RAB-BRU) guidelines. Requires Cost Calculation AKS module.

Cost Calculation HOAI

Determine your fees according to the German HOAI guidelines. Requires Cost Calculation AKS module.

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LAND ACQUISITION MODULES

Land Acquisition Logging

Log and manage land acquisition data. Output land acquisition directories in compliance with the German RE guidelines. Export interface in compliance with the German OKSTRA guidelines. Requires Base Map module.

Intersection

Convenient land acquisition processing. Automatic determination of sub areas. Produce sketch-maps. Requires Land Acquisition Logging module.

ALB Import

Import data from ALB (German automatic land register) into the CARD/1 land acquisition database. Requires Land Acquisition Logging module.

SEWER MODULES

Profile Drawing Sewer

Create sophisticated sewer profile drawings, also in reference to any existing road longitudinal profile. Requires Profile Drawing module.

Base Map Drawing Sewer

Create sewer base map drawings with flexible annotation features.

Sewer Network Hydraulics – Time Coefficient Method

Calculate and dimension sewer networks according to the time coefficient method for a maximum of 250 reaches.

Sewer Network Hydraulics – Hydrological

Calculate and dimension sewer networks according to a hydrological calculation model for 1,000, 2,000, 3,000 or more than 3,000 reaches. Requires Sewer Network Hydraulics module – Time Coefficient Method.

Sewer Network Hydraulics – Hydrodynamic

Hydrodynamic verification calculations of sewer networks for 1,000, 2,000, 3,000 or more than 3,000 reaches.

DRAWINGS

Drawing Editing

Create, edit and compile drawings. Output the drawings to any common plotter or printer. Drawing Editing is required for the drawing generating modules, e.g. Base Map, Alignment Drawing, Cross-Section Drawing, Profile Drawing, Switch Elevation Plan, Route Plan or Base Map Drawing Sewer.

Hybrid Drawing Editing

Import, process and display raster data in drawings, hybrid drawing output. Requires Drawing Editing module.

Alignment Drawing / Alignment Drawing Rail

Create sophisticated alignment drawings with flexible annotation features, carriageway edges, gradient changes etc.

Longitudinal Profile Drawing / Longitudinal Profile Drawing Rail

Create sophisticated vertical alignment drawings with vertical alignments, ground profiles, flexible annotation features, curvature, cant gradient, sight distance or other strings.

Profile Drawing Sewer

Create sophisticated sewer profile drawings, also in reference to any existing road longitudinal profile. Requires Profile Drawing module.

Base Map Drawing Sewer

Create sewer base map drawings with flexible annotation features.

Cross-Section Drawing / Cross-Section Drawing Rail

Create sophisticated cross-section drawings with individual sheet positioning, flexible annotation features and user-definable layouts. Requires Drawing Editing module.

CARD/1 cardCAD

Edit and output drawings in the DXF/DWG/DWF format, supports 2D as well as 3D design.

3D PROJECT VIEW

3D Project View

Display the existing project data in 3D. The current project model (existing conditions and design) can easily be checked and illustratively presented.

Route Simulation Road

Visualize and animate road designs based on cross-sections in 3D. Requires Cross-Section Editing module.

Route Simulation Rail

Visualize and animate railway route designs in 3D for checking and presentation purposes. Requires Cross-Section Editing module.

PRESENTATION MODULES

eView S

Presentation module based on the EDF format.

eView M

Present, document, distribute and archive project information using the electronic View-In technology. Requires eView S module.

eView L

Ready to use standard solution to document planning projects, user-definable standards. Requires eView M module.

eView key

User management for eView

eView Lisa S

Integrate large amounts of pixel data, e.g. geo-referenced aerial photos in your presentation. Requires eView Lisa S module.

eView Lisa L

Integrate designs from CAD applications into ortho-photos free of map sheets, combined presentation. Requires eView Lisa S module.

SYMBOL UND OBJECT LIBRARIES

Traffic Sign Library

Traffic sign library with the official traffic signs according to the German Highway Code StVO.

Street Furniture Library

Street furniture catalogue; contains a wide range of drawing objects to enhance base maps and longitudinal profiles, standard cross-sections and road cross-sections as well as other drawings.

INTERFACE MODULES

ALB Import

Import data from ALB (German automatic land register) into the CARD/1 land acquisition database. Requires Land Acquisition Logging module.

ASCHBAHN Im/Export

Import and export alignments, switches, cants, cross-falls and vertical alignments.

DA001 Im/Export

Import and export points and lines in the data format DA 001.

SoundPLAN Export

Export topographic and planning data to the program SoundPLAN.

DGN Export

Export CARD/1 drawings in the DGN format (MicroStation).

DGN Import

Import data in the DGN format as drawings or base map data.

DXF Export

Export CARD/1 drawings in the DXF format (AutoCAD).

DXF Import

Import data in the DXF format (AutoCAD) as drawings or base map data.

DWG Export

Export CARD/1 drawings in the DWG format (AutoCAD). Requires DXF Export module.

DWG Import

Import data in the DWG format (AutoCAD) as drawings or base map data. Requires module DXF Import.

HPGL Import

Import data in the HPGL format as drawings.

Sewer Data Import

Import sewer data from KanZEIT/KanFLUT (Barthauer), HYSTEM/EXTRAN (itwh), KANAL (rehm) and in the ISYBAU format type K.

GEOgraf Import

Import data in the GEOgraf format as base map data.

SDF Im/Export

Import and export data in the SDF format of the German Federal Railways.

OKSTRA Export Design

Export CARD/1 data (schema: 008 – design, 018 – geometry and 021 – general geometry objects) in the OKSTRA format.

OKSTRA Import Design

Import data (schema: 008 – design, 018 – geometry and 021 – general geometry objects) in the OKSTRA format.

CARD/1

The language of engineers

The System Modules and Extensions



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