Product Overview International

GRAPHISOFT DDScad™ | 20

Contents

The DDScad project mode

In DDScad, projects can be created and edited either on the basis of technology which has proven successful for many years or a new, future-oriented technology.

The OPEN BIM mode

The basis of this mode is a new technology that is optimized for working with models in OPEN BIM processes.
The focus is on projects in which the parties involved co-ordinate their work by exchanging data in IFC format.
Future DDScad developments will be based on this technology.

The Classic mode

This mode is based on established DDScad technology. As such, it has evolved and developed on the basis of the classic method in project workflows: the exchange of drawing files in DWG/DXF and PDF formats.

Note on the function overviews

In the following function overviews, available functions in the individual product packages are represented by different markings.
A dot „•“ indicates a function that is available in both project modes.
A „**C**“ indicates a function that is only available in classic mode.
A „**B**“ indicates a function that is only available in OPEN BIM mode.

The DDScad observer mode

The DDScad observer mode is available free of charge as a basic function package for all disciplines. In observer mode, you can open, view, present and evaluate projects. Use this option to save resources and make your organization more flexible. A DDScad license is not required for use.

Features included

Opening of DDScad projects
Flexible and simple visualization of floor plans and building models in 2D and 3D
Various presentation options for rendered 3D models
Automatic height-adjusted visualization and printing of overlapping objects in the top view (OpenGL)
BIM project coordination and collaboration via file- or cloud-based BCF tools (e.g. BIMsync, BIMcollab)
Printing and grouping existing parts lists for evaluation purposes
Cross-disciplinary clash detection
Integrated measurement features
Retrieving object information from the model
Switching existing layers
Printing of created print layouts

The DDScad workstation

The DDScad workstation has extensive basic functional equipment as well as its own BIM/CAD core. With this comprehensive OPEN BIM solution, you use a completely independent system: it is therefore independent of any additional basic software. Each DDScad workstation is equipped with fully integrated and certified OPEN BIM interfaces and thus offers the ideal basis for intelligent and interdisciplinary data exchange with architects and project participants from other disciplines.

Each DDScad workstation can be individually supplemented with the required discipline-specific DDScad packages and extension modules. In order to be able to use discipline-specific DDScad packages and extension modules, a DDScad workstation always has to be installed on your system.

Intelligent BIM/CAD core

Stand-alone intelligent BIM/CAD core
Network and server compatible as well as multi-user enabled on a project leve
Multi-discipline project management with project navigator
Multi-window technology, any number of models and views (2D, 3D, Zoom)
Import and export of all popular formats such as IFC, DXF, DWG, 3D DWG, PDF, 3DS, JPG and PNG
Export manager for classifications to IFC (e.g. ETIM, Omniclass, etc.)
BIM issue management to identify and check for collisions and issues via file- or cloud-based BCF tools (e.g. BIMsync, BIMcollab)
Digital access to 3D models, plans and project information anytime and anywhere with BIMx® presentation software for mobile devices, desktop PCs and web browsers
BIM project collaboration with Graphisoft BIMcloud® (SaaS)
Direct access to cloudbased platform BIMobject®
Fully integrated DWG/DXF editor with intelligent object mapper
Scale independent design and plot functions in 2D and 3D
Technical mirroring for a standardized and norm-compliant representation (C)
Flexible and associative object dimensioning
Intelligent generic and parametric 2D and 3D product databases
Automatic realistic height presentation of overlapping objects in top view (OpenGL)
Freely definable sections, part models and cut-outs
Flexible zone function for freely defining building entities
Intelligent control and navigation with 3D mouse from 3Dconnexion
Automatic multi-discipline management of layer, pen and font
Print layouts with automatic updating, independent layer structure, flexible scale selection and batch plot function
Programmable title field automatically fillable; automatic legends
Automatic sorting of parts lists according to building, storey, room and zone
Properties window for direct access to object properties
Create and manage project templates

The DDScad workstation

Intelligent building model

Flexible and easy planning of floor plans and building models in 2D and 3D
Extensive selection of intelligent and flexible 2D and 3D components
Automatic room recognition from DWG/DXF files, including windows, doors and room labels
Intelligent bi-directional OPEN BIM data exchange via IFC (ISO 16739)
Different presentation options for rendered 3D models
Automated model quality checks, cross-discipline collision detection
Realtime clash prevention
Easy editable building model in case of architectural changes
Intelligent design of suspended ceilings, roof windows, roofs and dormers
Intelligent and dynamic generation of opening elements with automatic labeling
Model-based coordination for provision for voids based on IFC
Automatic and configurable room labels
Automatic calculation of room surfaces and volumes, including roofs and dormers
Easy merging of complete building model including all disciplines for presentation and controlling
IFC and gbXML export for energy performance and other building simulations
Dynamic filter and color representation for rendered 3D models
Automatic transfer of breakthroughs to the parts list
Room book with extensive room data such as area, height, volume, ceiling type, floor type, etc.

Licensing and use of the dongle

In order to be able to use a DDScad license, the use of a hardware dongle is required. We offer different dongle variants for different conditions of use.

Local dongle:
The local dongle is offered for use at a single workstation. With such a local dongle, the storage and administration of projects within a network environment is possible. The dongle can be used by different users, but not simultaneously, as it must be physically plugged into the workstation.

Network dongle:
The network dongle enables work at a single workstation or the simultaneous work of several people at different computers. The dongle can be used on any computer within the network.

Our sales consultants will be happy to inform you about which dongle variant best suits your needs.

DDScad Sanitary and Heating

The DDScad packages for the plumbing and heating sector complement the basic features of the DDScad workstation with the discipline-specific plumbing and heating components. With these additional features included, you have the necessary means to process your projects in these disciplines efficiently, professionally and safely.

In this way, you turn your DDScad workstation into a comprehensive software solution for designing, calculating, visualizing and documenting plumbing and heating technology.

Discipline specific features	Package	
	02	10
Integrated design of sanitary, heating, cooling, gas, fire hydrant and sprinkler systems	•	•
Intelligent pipe network design with automatic object connection	•	•
Flexible representations of the pipe network: single line, double line with insulation, flood fill and 3D	•	•
Floor logic for simple cross-floor pipe network planning	•	•
Associative and freely configurable labeling of objects and pipe segments	•	•
Construction of line and system diagrams for heating and sanitation	•	•
Automatic adjustment of the flow direction for storey ports based on the calculation result	•	•

Integrated calculations	Package	
	02	10
U-value and heat load calculation according to EN 12831-1	•	•
Intelligent radiator design and automatic room placement	•	•
Flexible planning and calculation of underfloor heating system fields according to EN 1264	•	•
Pressure loss calculation, automatic dimensioning and hydraulic balancing of heating and cooling systems	•	•
Automatic update of associative labeling on pipe systems after calculation	•	•
System analysis with visualization filter: Worst path, velocity, insulation, diameter DN/OD	•	•
Building analysis with visualization filter: building units, U-values, specific heatload	•	•
Comprehensive system navigator for easy management and fast editing of calculated pipe systems	•	•
Design and calculation of potable water systems		•
Pressure loss calculation, automatic dimensioning and hydraulic balancing of potable water systems		•
Calculation of temperature drop in circulation and of stagnant water and waiting time in hot water pipes		•
Calculation of centralized and decentralized hot water systems, as well as a combination with multiple boilers		•
Calculation of ring pipelines with professional tap connection (flow-through backplate)		•

The DDScad Sanitary and Heating packages 02 and 10 are offered in the variants listed below:
B – Basic: 500 m^2 S – Standard: 1.500 m^2 P – Professional: 3.000 m^2 E – Expert: No limitations

The variants differ only in terms of the size of the area for which automatic calculations can be performed.
The listed area figures refer to the sum of all floors of a project.

DDScad Ventilation

The DDScad packages for the ventilation sector supplement the basic features of your DDScad workstation with the discipline-specific components. These additional features are suitable for all sizes, from classic residential ventilation systems to large-scale ventilation systems. With a package of DDScad Ventilation, you can process your projects in these disciplines efficiently, professionally and safely.

In this way, your DDScad workstation becomes a powerful tool for designing, calculating, visualizing and documenting ventilation technology.

Discipline specific features	Package	
	02	10
Integrated design of climate and ventilation systems	•	•
Flexible planning of round, oval and rectangular duct systems, also in combination	•	•
Intelligent duct network design with automatic object connection	•	•
Flexible representation of the duct network: double line with insulation, flood fill and 3D	•	•
Intelligent storey logic for duct network connections via ceiling and floor	•	•
Automatic connection of air terminals and mounting height control	•	•
Flexible creation of line and system diagrams with symbols according to EN 12792	•	•
Associative and freely configurable labeling of objects and duct segments	•	•

Integrated calculations	Package	
	02	10
Consideration of mechanical ventilation systems in the heat load calculation according to EN 12831	•	•
Consideration of passive pre-heating and heat recovery in the ventilation systems for the heat load calculation	•	•
Consideration of active preheating in ventilation systems and influence on the target performance of additional heating systems	•	•
Air flow specification and calculation of mechanical supply and extract air on individual room level	•	•
Automatic adjustment of all air terminals in the building taking into account the volumetric flow rate	•	•
Building analysis with visualization filter: building units, U-values, specific heatload	•	•
Design and calculation of controlled ventilation systems according to DIN 1946-6	•	•
Definition of ventilation zones and usage building units plus consideration of multiple ventilation systems in a single building	•	•

DDScad Ventilation

Integrated calculations	Package	
	02	10
Fully automatic updating of flexible labeling for duct work based on calculation results	•	•
Systemanalysis with visualization filter: Worst path, velocity, insulation, diameter DN/OD	•	•
Comprehensive system navigator for easy management and fast editing of calculated duct systems	•	•
Automatic duct network dimensioning based on predefinable design criteria (flow velocity)		•
Pressure loss calculation in real time and balancing in the system		•
Configurable velocity and dimensioning limits and inheritance per duct segment		•
Visual presentation of air velocity tolerances after system calculation		•

The DDScad Ventilation packages 02 and 10 are offered in the variants listed below:
B – Basic: 500 m^2 S – Standard: 1.500 m^2 P – Professional: 3.000 m^2 E – Expert: No limitations

The variants differ only in terms of the size of the area for which automatic calculations can be performed.
The listed area figures refer to the sum of all floors of a project.

DDScad Electrical

With our electrical packages for DDScad, you can expand your DDScad workstation into a powerful electrical specialist software. The additional features of the packages enable you to work on your DDScad workstation with the focus on electrical installation, distribution documentation or a combination of both areas at the highest professional level. This includes designing and calculating as well as inspecting and documenting your electrical engineering projects.

Discipline specific features	Package			
	01	02	10	11
Complete 2D and 3D electrical design features for: › Low voltage, electromobility, PA, aerial, measuring & control, movement and presence detector system, Lighting design, KNX, data, telephone, nurse call and intercom systems, Fire, security and alarm systems, video surveillance and access control	•	•	•	•
Intelligent multi-storey design of cable management systems: cable ladders, -trays, -ducts, conduits and floor trunking	•	•	•	•
Designing busbar systems as part of electrical installation projects	B	B	B	B
Complete electrical design based on IFC reference model	•	•	•	•
Comprehensive system navigator for quick and easy management and calculation of electrical and distribution board installations	•	•	•	•
Integrated light calculation; interface with Relux	•	•	•	•
Integrated light calculation; interface with DIALux	B	B	B	B
Visualization and planning of detection areas for movement and presence detectors	•	•	•	•
Design of lightning protection and earthing systems as well as equipotential bonding	•	•	•	•
Intelligent circuit selection with circuit and component dimensioning	•	•	•	•
Diversity factor for determination of load performance per circuit and distributor supply	•	•	•	•
Intelligent multi-storey cable and cable trunking function with automatic cable length calculation as well as the shortest path to distribution board	•	•	•	•
Automatic documentation of the installation planning: parts lists, cable lists, cable lists with rooms, circuit load, fire alarm system list	•	•	•	•
Automatic cable and conduit calculation with length control	•	•	•	•
Automatic load calculation from end consumers through all distribution levels up to the main supply	•	•	•	•
Voltage drop calculation with automatic real-time load calculation	•	•	•	•
Intelligent clash detection and automatic cross-trade clash control	•	•	•	•
Various control functions, Indicate objects without or interrupted connections	•	•	•	•
Associative and freely configurable component, cable and circuit labeling	•	•	•	•
Automatic and fully configurable legends	•	•	•	•
Intelligent exchange between model and distributor database; automatic update of electrical diagram	•	•	•	•
High-quality and flexible design of photovoltaic systems (More information on intelligent PV design see page 11)	•	•	•	•
Automatic and flexibly configurable system diagrams for power supply (including distribution boards and connected components), fire detection, emergency lighting, data network, nurse call and security systems				•
Bi-directional intelligent KNX interface to ETS via the app ‘ProjectDataExchange’ from IT GmbH				C

DDScad Electrical

Discipline specific features – Distribution planning	Package			
	01	02	10	11
Automatic creation and update of sheet, revision and circuit lists		•	•	•
Automatic creation and update of single line circuit diagrams		•	•	•
Automatic documentation of distribution board planning: circuit lists, cable lists, cable calculations and single-pole circuit diagrams		•	•	•
Bi-directional interface with test and measurement equipment from GMC-I		•	•	•
Extensive technical database with intelligent symbols, components and circuit macros		•	•	•
Flexible presentation and intelligent configuration options for sheets and circuit diagrams		•	•	•
Automatic numbering of components and terminals including cross-referencing		•	•	•
Automatic warning of under dimensioned components		•	•	•
Automatic prevention of double connections for contacts, components and terminals		•	•	•
Automatic creation and update of multi-line circuit diagrams			•	•
Complete distribution board layout design in 2D and 3D			•	•
Automatic distributor views (side, interior, door, 3D view), punch patterns, mimic diagrams			•	•
Automatic tabular patch panel overview for network and data systems			•	•
Intelligent KNX layouts for automatic circuit diagrams and overview of modular devices				•
Creation of measurement, control and regulation technology diagrams and data network cabinet views				•
Automatic creation of connection and cable diagrams				•
Graphical PLC card overview with automatic cross-referencing of inputs and outputs				•

The DDScad Elecrical packages 01, 02, 10 and 11 are offered in the variants listed below:

B – Basic: 6 distribution boards with each 20 circuit
S – Standard: 6 distribution boards with each 35 circuit
P – Professional: 20 distribution boards with each 50 circuit
E – Expert: No limitations

The variants differ only in terms of the number of distribution boards and circuits, for which automatic mechanisms are available for calculating and drawing circuit diagrams and distribution lists.

Manual planning of circuits is possible without limitation in all variants.

DDScad Security

The DDScad Security package contains a selection of features that have been specially adapted to the planning of security technology. In combination with the basic equipment of the DDScad workstation, the DDScad Security package represents a powerful specialist solution for the efficient planning and documentation of security technology systems in buildings.

Discipline specific features

Complete 2D and 3D installation plans for safety engineering projects:
- ELA, antenna and MSR systems, presence and motion detectors
- Data, telephone, nurse call and intercom systems
- Fire, security and alarm systems, video surveillance and access control

Automatic system diagrams for power supply, fire detection, emergency lighting, data network, nurse call and security systems

Intelligent multi-storey design of cable management systems: cable ladders, -trays, -ducts, conduits and floor trunking as well as automatic insertion plans with dimensioning

Visualization and planning of detection areas for movement and presence detectors

Intelligent circuit selection with circuit and component dimensioning

Intelligent multi-storey cable and cable trunking function with automatic cable length calculation

Flexible multi-storey cabling and routing with automatic cable list and cable pull list

Various control functions, indicate objects without or interrupted connections

Associative and freely configurable component, cable and circuit labeling

Automatic and configurable legends

DDScad PV

The DDScad PV package contains a combination of features that has been specially adapted to the planning of photovoltaic systems. Combined with the basic equipment of the DDScad workstation, the DDScad PV package enables safe, comprehensive and efficient planning and documentation of PV systems.

Intelligent PV system design

- High quality and flexible planning of PV systems in 2D and 3D
- Database including generic mounting systems
- Flexible system design: on-roof, in-roof, facade and ground mounted
- Generation of roof layout, system schematic and string diagram
- Freely definable cross-sections, elevations and part models
- Configurable parts list by area, building, etc.
- Production of assembly and installation plans in DWG, DXF and PDF
- Plot layouts with automatic update, independent layer structure and flexible scale selection

Visualization (included extension module DDS-AR)

- Visualization of the course of the sun and shading
- Photorealistic presentation with sun animation and video output

Polysun Inside (recommended extension module)

- Integrated database with global climate data of over 8.000 weather stations
- Online access to Meteonorm horizon lines
- Calculation of weather data for user-defined locations
- During the simulation; update of the sun‘s position every 4 minutes
- Detailed shading visualization
- Comprehensive and up to date product database for PV modules and inverters
- Automatic inverter assignment for PV fields
- Connect differently oriented PV fields on a single multi-tracker inverter
- Yield estimation with dynamic simulation taking into account module warming and reactive power
- Extensive self-consumption profiles: comparison between yield and self-consumption
- Dimensioning and editing of PV modules with respect to module area and orientation
- Automatic overview and report of yield estimation results

DDScad Lightning Protection

The DDScad lightning protection package contains a selection of features that have been specially adapted to the planning of systems for external lightning protection. In combination with the basic equipment of the DDScad workstation, the DDScad Lightning Protection package is an ideal tool for the standard-compliant planning and documentation of lightning protection and earthing systems, including equipotential bonding.

Intelligent Lightning Protection system design

Flexible design of external lightning protection systems in 2D and 3D
Assembly and installation plans including automated planning of mounting and retaining systems
Use of 2D and 3D lightning balls for rolling sphere method on 3D building model
Freely definable cross-sections, elevations and part models
Configurable parts lists by title, area, building, etc.
Production of assembly and installation plans in DWG, DXF and PDF
Scaled plotting and printing of output

DDScad add-on modules

The following list shows which chargeable add-on modules are available for the respective packages.

Basic extensions

Module	Short description	EL	SH	KL	SEC	PV	LP
DDS-FR	Escape, rescue and fire plans	+	+	+	+	+	+
DDS-AR	Photorealistic presentation with sun animation and video	+	+	+	+	✓	+

Interfaces and connections

Module	Short description	EL	SH	KL	SEC	PV	LP
DDS-GER-ESBO	Bidirectional interface with EQUA ESBO for dynamic Cooling load calculation according to VDI 2078 and ASHRAE	+	+	+	-	-	-
DDS-INT-ESBO	Bidirectional interface with EQUA ESBO for dynamic Cooling load calculation according to ASHRAE	+	+	+	-	-	-

Sanitary and heating

Module	Short description	EL	SH	KL	SEC	PV	LP
DDS-UHL	U-value and heat load calculation according to EN 12831-1	+	✓	+	-	-	-
SH-RBS	Waste water system calculation according to EN 12056	-	+	-	-	-	-

Ventilation

Module	Short description	EL	SH	VE	SE	PV	LP
KL-VOB	Automated duct surveying in accordance with VOB and DIN 18379 (only available in KL-10)	-	-	+	-	-	-
KL-SPB	Dynamic sound level calculation	-	-	+	-	-	-

- \- not available for this package
- \+ available for this package
- ✓ The corresponding module is already included in the basic equipment.

EL: Electrical
SH: Sanitary and Heating
VE: Ventilation
SE: Security
LP: Lightning Protection

DDScad add-on modules

Electrical

Module	Short description	EL	SH	VE	SE	PV	LP
EL-AS	Automatic and flexibly configurable system diagrams for power supply, fire detection, emergency lighting, data network, nurse call and security systems (included in EL-11)	+	-	-	✓	-	-

PV

Module	Short description	EL	SH	VE	SE	PV	LP
EL-PS	Polysun Inside (inverter assignment, yield forecast and other PV functions)	+	-	-	-	+	-

- \- not available for this package
- \+ available for this package
- ✓ The corresponding module is already included in the basic equipment.

EL: Electrical
SH: Sanitary and Heating
VE: Ventilation
SE: Security
LP: Lightning Protection

Software maintenance and technical customer advice

With a DDScad software maintenance agreement, you keep your software up to date at all times. You receive each further development of DDScad free of charge. These also take into account the maintenance and expansion of the article and component databases, interfaces, reports, standards and regulations, help videos and the complete user documentation.

In addition, software maintenance customers can take advantage of the support of the technical customer advisory service. Our experts with practical experience regularly undergo further training in order to provide DDScad users with the best possible support and advice. Support is provided by telephone, e-mail and via a direct online connection. We regularly send out our technical telegram, an e-mail service with many helpful hints as well as tips and tricks in the DDScad application.

As a customer with a software maintenance agreement, you receive all DDScad software packages, DDScad extension modules at reduced conditions. The software maintenance fee is calculated from an annual basic fee and a percentage share (16 percent) of the software list price.

For customers without a software maintenance agreement, the above-mentioned reduction of the software list price cannot be granted. Thus, the software list prices without such an agreement increase by 20% in each case.

DDScad by subscription

DDScad is also available for selected countries in the Graphisoft webstore on a monthly and annual subscription basis. This offer will be gradually introduced in further countries. Your sales contact will be happy to let you know if you‘re already eligible to purchase a DDScad subscription.

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