Performance Description

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Introduction

Eplan offers Engineering software and service in the fields of electrical engineering, fluid power, automatization and mechatronics. The company develops one of the world's leading software solutions for engineering, plant engineering and enclosure design. Eplan is also the ideal partner for simplifying challenging engineering processes.

Standardized and individual ERP and PLM/PDM interfaces ensure consistent data along the entire value chain. Whether small or large companies, customers can thus use their expertise more efficiently. Eplan aims to keep growing with its customers and partners and furthers integration and automation in engineering. "Efficient Engineering" is our motto.

Eplan was founded in 1984 and is part of the Friedhelm Loh Group.

All from one provider: Eplan Solutions

Eplan supports the user in setting up engineering across multiple disciplines and independent of location. This means increases in efficiency when working on the Eplan project, because digital data flows seamlessly from solution to solution and is enriched accordingly in the project. Eplan Platform offers added value for collaboration in a team, especially when it comes to tasks shared between different locations.

Eplan allows bidirectional exchange with ERP and PLM / PDM systems via interfaces. Through neutral interfaces the Eplan project data can be exchanged with other software environments and further processed.

Extensions for all cases

No matter which requirements have to be fulfilled in the future or to what extent work with Eplan solutions is already taking place: Extensions in all directions can be implemented easily thanks to the Eplan concept – flexibly and individually for individual tasks.

A comprehensive overview of the current extension options is listed in the licensing overview. Should you have any further questions on this topic, please do not hesitate to ask your Eplan contact person.

Eplan Education

Eplan Education is used in the educational sector and reflects the whole Eplan platform. The Eplan Education license has a fixed scope of licensing that is not expandable and does not contain any hidden costs.

The following main differences exist between Eplan Education and the full versions of Eplan Preplanning, Eplan Electric P8, Eplan Pro Panel and Eplan Harness proD:

- A deviating incompatible data format – as a result Eplan Education projects, for example, cannot be opened and/or edited with the Eplan full versions and vice versa
- Limited export functionalities, in particular into manufacturing
- A watermark "Eplan Education" in the printout

The Eplan Education teaching concept

Users of the Eplan Education Classroom license receive access to a comprehensive package of teaching materials after ordering. These can be used to facilitate the preparation and implementation of the lessons.

Eplan Education for Student

As a supplement to the Eplan Education Classroom license, pupils and students can download a free student license – *Eplan Education for Student* – for their private use. Eplan Education for Student is limited to 40 pages and is valid for 3 years after registration.

Restrictions

- Limited export functionalities, in particular into manufacturing
- A watermark "Eplan Education" in the printout

Note:

Eplan Education is a fixed service package. It is not possible to combine the functional scope of the Eplan Education license individually or to extend the existing scope. Information about which functionalities are contained in the various products of the Eplan Education license is available in the associated licensing overview.

Collaboration apps

Eplan Data Portal

The Eplan Data Portal has direct online access to high-quality product catalogs of notable component manufacturers. Eplan Preplanning, Eplan Electric P8 and Eplan Pro Panel access this Web service equally. Simple transfer of the offered components into the Eplan documentation reduces the required configuration work and increases the quality of the machine and plant documentation. With its Data Standard based on ECLASS Advanced, Eplan Data Portal provides a systematic framework for device attributes.

Parts management – eStock

The parts management eStock can be used to provide Eplan parts data and part-specific macros, images and documents for defined users. By categorizing parts into different "Collections", parts and component data can be made available to different target groups across all locations.

Automated project generation – eBuild

With the automated project generation eBuild, you can create your own template libraries that can be made available system-wide and location-independent for employees and colleagues as reusable libraries.

Automated project generation allows complete schematics or partial circuits of a project to be generated in a controlled and automated manner via a configuration user interface. The result is an Eplan project that can then be edited further with functionalities provided by Eplan Preplanning, Eplan Electric P8 and Eplan Pro Panel. Errors are avoided by the automatic generation of schematics or partial circuits and the quality of the documentation increases sustainably.

Eplan functionalities

Preplanning

Electrical engineering

Function-related reports

- Terminal diagram
  One terminal diagram for each terminal strip. Structure and wiring.
- Terminal line-up diagram
  One terminal line-up diagram for each terminal strip.
- Plug diagram
  One plug diagram for each plug. Structure and wiring.
- Cable diagram
  Cable properties
- Cable assignment diagram
  The cable assignment diagram shows single-line predefined cables in multi-line representation with pin assignment.

Operational sequence sheets

This functionality supports the user in the creation of operational sequence sheets through forms, symbols, etc.

Operational sequence sheets include the functional diagrams (VDI 3260 standard) and GRAFCET diagrams (DIN EN 60848). GRAFCET diagrams are representations of sequential controls in which the specification language GRAFCET (GRAphe Fonctionnel de Commande Etapes/Transitions) has been used.

Process engineering

Process / piping & instrumentation diagrams (P&ID)

Eplan makes extensive editing functions available for the graphical and database-oriented creation of P&IDs – general plant overviews.

- Process and instrumentation diagram
- Piping and instrumentation diagram
- Plant flowcharts
- Instrumentation schemes
- Bundle, plant or controlling schemes

The efficient graphic and macro functions of the Eplan graphical editor support the user in fast and reliable project planning. Autoconnecting can be used to define connections between the items and to automatically report the associated information and process data.

Parallel to the graphical placement of the PCT loops and devices in the P&ID, the planning objects (such as sensors, pumps, containers, etc.) are recorded in the pre-planning navigator and can be managed there in a tree structure. The association of the instruments and automation components to the individual PCT loops is also managed here.

The described functionalities are only available for certain module packages.

Pipings in the pre-planning and in the P&I diagram

In order to take pipings into consideration as early as possible in the engineering process, the user can create planning objects for pipings in the pre-planning. On the basis of this pre-planning several connections on a P&I diagram can be combined into a piping through a piping definition. In the process important information for the pipings such as pipe classes and substances are managed as independent objects in the segment template navigator. The report types Piping overview, Pipe class overview and Substance overview are available for the reporting of the pipings, pipe classes and substances existing in a project.

Planning objects for connections in pre-planning

"Connection planning objects" are available to the user as segments in the pre-planning (piping planning objects, cable planning objects). Connection planning objects define which segments are connected with each other and describe a piping or a cable in the pre-planning. The connection planning objects are managed in parallel to general planning objects, and behave in a way similar to them. External documents / pages, parts and function templates can be stored at a connection planning object, but not PLC addresses or macros.

Electric P8

Electrical engineering

Generating electrical schematics

This functionality offers the possibility to create logical links and relationships of automation projects in the form of electrical schematics.

Multi-line

This option offers the possibility to create multi-line schematics as part of the project documentation.

Multi-line representations are used to represent the logical link of the plant elements in detail, so that individual pole positions of an item or part of a plant can be assigned precisely.

There is a synchronization between multi-line and single-line schematics. This allows the user to automatically update the respective other representation when using copy and revision processes.

Single-line

This option offers the possibility to create single-line schematics as part of the project documentation.

This simplifies the creation of plant overviews considerably. Cables, lines, terminal strips and plugs can be defined easily in advance in order to be used later in the detailed schematic. Single-line representations are often used to represent the logical combination of the plant elements simply and clearly and thus also to determine the protection values.

Using pre-defined macros, Eplan Preplanning can be used to create single-line representations that are used, among other things, for graphical pre-planning. This allows the user to create a complete overview very quickly at the start of the project planning and thus facilitate the planning of the parts to be ordered beforehand. If required, the detailed interconnection of items can also be stored in table form in the database in the single-line representation.

Cable length determination 2D – FieldSys

Eplan Electric P8 allows the planning of the machine / plant cabling. Automatic routing including length determination is carried out in 2D. Extensive reports that are created on the basis of the 2D routing results support the tasks from the engineering process, such as mounting and maintenance.

Assembly reports

The system includes automatic creation and, if required, online updating of graphical reports such as terminal diagrams, cable diagrams, and bills of materials.

Connected reports for project sections or report types can be grouped into blocks. The reports that belong to a report block are then always updated simultaneously.

The result of the report is displayed in a report page or output to external files, e.g. for the printing of item labels. It is possible to output the report pages into the same or into any other project.

Part reports

- Parts list
  The parts used in the project are listed individually.

- Summarized parts list
  The parts used in the project are listed individually. Identical parts are consolidated and listed in summary.

- Device tag list
  The device tag list outputs the devices used in the project.

Function-related reports

- Terminal diagram
  One terminal diagram for each terminal strip. Structure and wiring.

- Terminal line-up diagram
  One terminal line-up diagram for each terminal strip.

- Plug diagram
  One plug diagram for each plug. Structure and wiring.

- Cable diagram
  Cable properties

- Cable assignment diagram
  The cable assignment diagram shows single-line predefined cables in multi-line representation with pin assignment.

Overview reports

The automatic overviews provide a rapid and accurate list of the items used in the schematic. The following overviews can be generated in this context:

- Cable / line overview

- Plug overview

- Terminal-strip overview

- Potential & signal overview

Graphical reports

Connection diagrams

The connected targets of items are represented graphically in the automatic connection point diagrams. You can tell at a glance how the signal and energy flows between the items are wired.

- Terminal-connection diagram
- Pin-connection diagram
- Cable-connection diagram

Device connection diagram

The device connection diagram displays the wiring of the connection points from a device-oriented viewpoint. Sorting is device.

2D panel layout

The 2D panel layout also facilitates the configuration of 2D mounting layouts for mounting panels and enclosures in addition to schematic creation and reporting.

For the 2D mounting layout, the user can generate item legends that can be integrated into the project in a number of different ways.

In order to support the various working methods of designers and engineers, it is also possible to perform a 2D mounting layout independent of the schematic. The part placements used in the 2D mounting layout in this context define a device, even if no corresponding function has been placed in the schematic yet.

During placement, devices used in the schematic or existing in the parts preselection can be displayed in a list structure or tree structure.

Items used in the schematic can be placed on a 2D mounting panel. In the course of the placement a check is carried out whether the positioning is taking place on the correct mounting panel. This furthermore immediately indicates which items from the schematic have yet to be placed on the mounting panel.

The data of the items in the 2D mounting layout can be listed automatically. The resulting enclosure legend can be generated as a window legend – i.e. as a freely positionable graphical object – on the same project page as that of the 2D mounting layout. It is alternatively possible to output the legend as a separate form on its own project page.

Multi-user operation

Multi-user operation allows several users to edit a project simultaneously in multi-user operation. You can furthermore see which users are currently working on a project with the "Eplan Multiuser Management" functionalities. This allows users to define working sections in large projects in order to have a better overview of the project planning.

Please contact Eplan Support with regard to the hardware requirements for multi-user operation. We can advise you specifically according to your individual requirements.

PLC controllers and bus systems

This functionality provides comprehensive support for the user in the management of PLC controllers and bus systems.

Several bus systems and PLC controllers can be managed in one Eplan project. In the process several bus systems can be connected to a PLC or a bus system can contain several PLC control systems. The PLC information of an Eplan project can be displayed and edited in a dialog.

PLC connections can be re-addressed automatedly and displayed on overview pages. Settings for different PLC types can be saved in schemes and switched centrally.

The wiring of PLC assemblies can be overviewed at every project stage and edited with system support.

Net-based connections

This functionality allows the planning of the wiring of the components in a plant from the functional view in tabular form. With the "point wiring" the items / connection points that are connected to each other are displayed in the schematic. The order of the connections can still remain open at this point. When the spatial arrangement of the components and their optimal wiring has been clarified by the installer later on, this information can be added.

In the case of strongly distributed potentials the net-based representation makes many interruption points and connection lines in the schematic superfluous. The engineer thus represents complex connections in simplified form. The schematic is better structured and easier to read for the installer.

Comments navigator

The comments navigator allows the creation of comments within Eplan Preplanning, Eplan Electric P8 and Eplan Pro Panel. The history of the imported as well as newly created comments can be viewed at any time. A status can be assigned to the comments, and list-based visualization makes it possible to process and prioritize the comments.

Fluid power

Eplan Electric P8 provides functions and options specifically for the configuration as well as automated documentation of circuits for fluid power systems in the pneumatics, cooling, lubrication and hydraulics sectors.

Automatic cross-references between the fluid power and electrical engineering trades simplify navigation and the editing of hybrid construction elements such as e.g. electropneumatic or electrohydraulic assemblies. All modifications are visible in the software of both trade groups.

The functionality supports the identification code for fluid power devices in accordance with common standards. Complex fluid power devices can be implemented with the help of device groups. Automatic check runs provide security when planning and help to create error-free schematics and reports.

The creation of schematics for fluid power offers the possibility to create logical links and relationships of automation projects in the form of fluid power schematics.

Eplan Fluid Hose Configurator

The Eplan Fluid Hose Configurator provides the hydraulics user with a wizard for complete specification of a hydraulic hose line. A norm-compliant type code is generated automatically in accordance with predefinable sets of rules (such as to DIN 20066) and transferred to the selected hydraulic hose line. This norm-compliant type code allows the hose line to be ordered clearly defined at nearly any supplier.

Eplan Electric P8 can be used to generate report pages as additional information for documentation, thus supporting clear communication between the purchaser and the supplier of the hose line.

Pro Panel

3D mounting layout

The mounting layout in 3D is used for placing electrical engineering and fluid power devices from the Eplan project, from the Eplan parts management or from the Eplan Data Portal in 3D, as required. In conjunction with mechanical components such as cable ducts, mounting rails, mounting panels, or entire enclosures, "Eplan Pro Panel" simplifies the construction of complex 3D mounting layouts dramatically.

Defining processing information graphically

This functionality allows the design of drill holes, cut-outs and outlines in Eplan Pro Panel, which can then be used for the creation of drilling patterns or NC records.

Such outlines are created graphically in Eplan Pro Panel and enriched with machine-specific information by the generation of an NC record.

3D import / export

3D data (bodies) can be imported into the Eplan system by means of the supported neutral CAD formats. In further working steps this data can be defined as 3D macros in Eplan. These macros can be assigned to existing parts data for further use.

The export of 3D components of a layout space can be carried out in the Eplan System via a supported neutral CAD format. Information about the solids, analytic surfaces and volumes is exported in as far as it is available in the Eplan 3D macro. The exported data can be imported for further editing into suitable, external CAD systems.

Further information about the supported neutral CAD formats is provided in the licensing overview.

Collaboration

Revision control

The revision control allows modifications to existing projects to be automatically recorded and documented by means of revisioning. The user can also access older versions of the project and mark the modified project pages with an approval stamp.

If objects were changed in a revision, these are displayed with a graphical marker in the schematic. The revision states created for a project can be output in revision overviews, which can be either printed or inserted into the current project as separate report pages.

Project management

The project management offers the possibility of cross-drive project management in a local client / server infrastructure. Project-specific and non-project-specific information can be stored and displayed in the project management. Projects that are provided via the data management cannot be managed.

In order to also find existing projects starting from other workstations via the project management, it is possible to load the header data of the Eplan projects into a project management database.

Project properties can be processed in blocks in project management. A complete overview of the project header data of a project can also be output. If desired, the users who are currently editing a project are displayed.

Change of standard

The change of standard offers the possibility of adapting an existing project to the specifications of a different standard on the basis of a wizard function. On the basis of suitable templates you can replace plot frames and forms, rotate schematics (Europe – USA), replace symbol libraries and symbols, and adapt designations and descriptions to the target standard.

Defined working sections

You can use this option to divide projects structured by identifier blocks into "defined working sections". The division of projects into defined working sections is done on the basis of the existing structure identifiers in the project. Either each user chooses the defined working sections in which they want to work, or assigning is done centrally by an administrator.

Defining subprojects

With this option projects can be divided into smaller subprojects and edited. These subprojects can then be edited independently of the overall project.

Projects can be divided on the basis of different criteria as required, for example by trades or by structure identifiers. The criteria specified by the user for the division are stored in "schemes". The working method also allows comfortable collaboration with suppliers.

After completed editing, the subprojects can be integrated back into the overall project in order to automatically obtain a complete documentation.

Automatic translation

Automatic translation allows you to output monolingual or multilingual schematic documentation.

The texts within an Eplan project are translated automatically. The support of professional translation agencies can be integrated through a data exchange via XML, CSV or TXT. Unicode characters are supported. The "AutoComplete" functionality minimizes manual inputs.

Multi-user management

Extensive projects are often edited at the same time by several persons and are often not transparent for the individual users in view of the amount of data involved. Although the designer only works in a defined part of the project, Eplan displays the entire project data in dialogs and navigators. Multi-user management reduces the amount of data for the individual user in this use case and increases the overall clarity.

Project options

This functionality defines areas of a machine or plant as options and then displays or hides them within the Eplan project. This way, configuration characteristics or different designs of a machine or plant can be easily represented and managed.

Only the currently activated project options are considered for reports within a project. Hidden project options are not considered.

A project option can also be displayed transparently. With the transparent display it is also graphically easy to recognize that at this point in the documentation a project option has been defined which is, however, currently deactivated and not considered.

Additional information (e.g. in deactivated project options) can be removed from a project prior to delivery. Special reports give an indication which project options are contained in the project and which ones are selected.

Project verification

The project verification supports the collaboration between the client and the supplier.

An incoming or outgoing project can be checked by the supplier as well as the client rapidly and without manual work against the specifications and guidelines of the client. A structured overview of the test results allows a substantiated assessment of the project quality and consistency. The assessment whether the project fulfills the acceptance criteria of the client is thus possible at any time.

Differences to the project specifications are documented by means of a message report.

Rights management

Access to functionalities and options of the Eplan Platform can be administered, similar to the Windows rights management.

The rights management can be used to block the use of dialogs, menu items, and commands in the user interface.

The defined access rights can be defined individually or in blocks and can be assigned to users or user groups.

If certain rights are revoked from a user, the associated menu items will be grayed out. In this way, the system only offers users the commands they need to perform their tasks.

Both users as well as user groups that have already been defined in a company can be transferred simply into the rights management by using Active Directory.

Note:

The description of the functional overview always refers to the highest module package. Which functionalities are contained in the different module packages is specified in the associated licensing overview.

3D routing connections

Importing routing connections and devices

This functionality allows you to import component data and connection information from external programs (other CAE systems, ERP systems, Excel, etc.) into an Eplan project.

Pro Panel - virtual wiring

The virtual wiring in Eplan Pro Panel allows the routing of electrical as well as fluid power connections in a layout space in 3D.

The definition of routing path networks, the routing of routing connections, the optimization of the networks and routing connections up to the provision of the wires parts lists for manufacturing.

Pro Panel - virtual hosing

The virtual hosing in Eplan Pro Panel allows the planning of hoses and pipes in 3D, the graphical definition of connection point patterns, the assignment of pneumatic and hydraulic components, the routing of hoses & pipes in 3D, the output of corresponding reports such as pipe and hose lists.

3D copper items

Designing 3D copper items

With Eplan Pro Panel you can design individual copper rails and connection elements with corresponding bending and punching requirements in 3D.

Hardware and software requirements for Eplan

Please observe the notes in the information portal (Software and hardware requirements). These requirements are only available in English.

Licensing overview

X Standard functionality - Not available

	Eplan Education Classroom	Eplan Education Student
International page restriction	No	40 pages

Collaboration apps		
Eplan Data Portal	X	X
Parts management - eStock	X	X
Project viewer - eView	-	-
Data management - eManage	-	-
Automated project generation - eBuild	X	X

	Eplan Preplanning	Eplan Preplanning
Electrical engineering		
Function-related reports	X	X
Operational sequence sheets	X	X
Importing and synchronizing pre-planning data	-	-

Process engineering		
Process/Piping & Instrumentation Diagram (P&ID)	X	X

	Electric P8	Electric P8
Electrical engineering		
Electrical engineering schematic generation	X	X
Multi-line representation	X	X
Single-line representation	X	X
Cable length determination 2D - FieldSys	X	X
Assembly reports	X	X
Manufacturing data output	-	-
Part reports	X	X

Function-related reports	X	X
Graphical reports	X	X
Overview reports	X	X
Harness proD extensions	X	X
2D panel layout	X	X
Configuration of PLC controllers/bus systems	X	X (export excepted)
Net-based connections	X	X
Comment navigator+	X	X

Fluid power		
Fluid power schematic generation	X	X
Fluid Hose Configurator	X	X

Collaboration		
Revision control	X	X
Project management	X	X
Change of standard	X	X
Multilingual translation	X	X
Multi-user operation	X	X
Multi-user management	-	-
Multi-user monitor	-	-
Project options	X	X
Project verification	X	X
Rights management	X	-

ERP integration		
Eplan ERP Integration Suite	-	-

	Pro Panel	**Pro Panel**
3D mounting layout		
3D mounting layout	X	X
Defining processing information graphically	X	X
Pro Panel STEP import	X	X
Pro Panel STEP export	-	-
Pro Panel JT import	X	X

Pro Panel JT export	-	-
Pro Panel IFC export	-	-

3D routing connections		
Importing routing connections and devices	X	X
Routing wire routing connections - electrical engineering	X	X
Routing hose routing connections - fluid power	X	X
Routing piping routing connections - fluid power	-	-
Export interface Eplan Smart Production	-	-

3D copper items		
Designing 3D copper items	X	X
Exporting 3D copper items - DXF	-	-
Exporting 3D copper items - NC	-	-

Rittal interfaces and integrations		
Rittal Ri Panel Integration	-	-
Rittal Therm Integration	-	-
Pro Panel Production Rittal Wire Terminal	-	-
Pro Panel Production RiPanel Processing Center	-	-
Pro Panel Production NC Rittal Perforex BC / Secarex	-	-
Pro Panel Production NC Rittal Perforex LC / Secarex	-	-
Thermal Design Integration -View Data (For Rittal climate control solutions)	-	-

Errors and changes reserved.

Import and export limitations

The export is limited as follows:

Export of data (comparison with Eplan full version)				
	DXF / DWG	Image files	Assignment list	Projects
Eplan Education	Not possible	Possible only to a limited extent*	Possible	Not possible

The import is limited as follows:

Import of data (comparison with Eplan full version)				
	DXF / DWG	Image files	Assignment list	Projects
Eplan Education	Possible	Possible only to a limited extent**	Possible	Not possible

It is not possible to edit properties externally. The following data is not compatible between Eplan Education and full versions such as Eplan Electric P8:

- Projects
- Forms
- Plot frames
- Macros
- Outlines
- Symbols.

* In Eplan Electric P8 of the Eplan Education Version an individual page can be exported as an image file.

** Image files can be inserted, but not be imported page-based.