Performance Description

Contents: EPLAN Pro Panel 2022
Status: 01/2022

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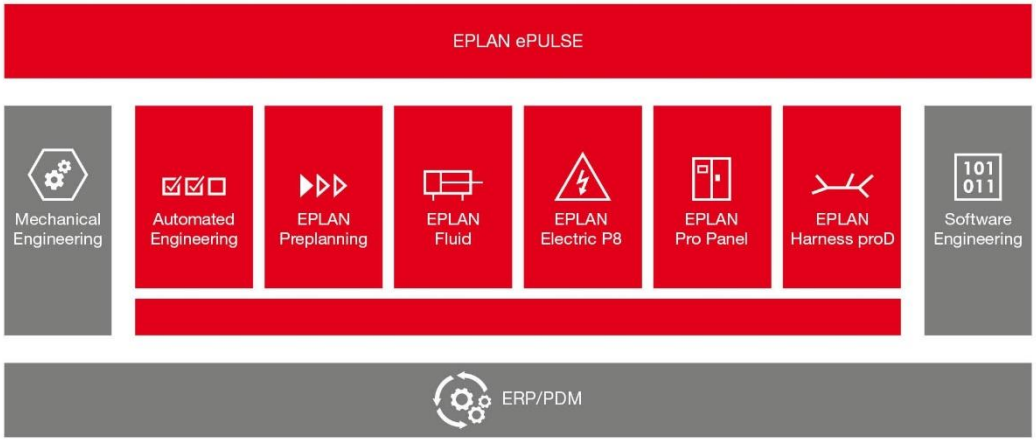
Introduction

EPLAN offers Engineering software and service in the fields of electrical engineering, automation 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. Working with EPLAN means unrestricted communication across all engineering disciplines. Whether small or large companies: Customers can 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 you with establishing your engineering across multiple disciplines. The basis is formed by the EPLAN platform that interconnects our software solutions. For you this means a clear increase in efficiency when it comes to working on your EPLAN project. Since your digital data flow seamlessly from solution to solution and are enriched further in every process step. The Cloud products of EPLAN offer added values for collaboration in teams - in particular for tasks across all your locations.

Together the EPLAN Platform and the supplementary Cloud applications form EPLAN Solutions - or, in other words: the key for your future-oriented engineering.

EPLAN offers a comprehensive framework for your daily work. This way interfaces allow the bidirectional exchange with ERP and PDM systems. With the connection to mechatronic processes you expand your view to a mechatronical engineering perspective. With neutral interfaces you can transfer the EPLAN project data into other software environments and continue working on them.

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Extensions and modules for all cases

No matter to what extent you are already working with EPLAN solutions in your company and which requirements have to be fulfilled in the future: Extensions in all directions can be implemented easily thanks to the add-on concept of EPLAN - flexibly and individually for your tasks.

To this purpose EPLAN offers comprehensive extension options through extension modules and in the form of service packages - the "Elements".

You can find a comprehensive overview of the current extension modules in the licensing overview. Should you have any further questions on this topic, please do not hesitate to ask your EPLAN contact person.

EPLAN Electric P8

With EPLAN Electric P8 you configure your electrical design for machines and plants in an engineering system consistently, coherently and quickly. The software supports diverse engineering methods: from manual creation to standardized and template-based work. EPLAN Electric P8 automatically creates detailed reports for you as an integral part of the project documentation - if desired continuously or bundled after project completion. This way you supply the downstream process steps with all required information from the engineering process.

EPLAN Fluid

EPLAN Fluid is your engineering tool, especially for the configuration and automated documentation of circuits of fluid-power plants in the fields of hydraulics, pneumatics, cooling and lubrication.

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EPLAN Preplanning

EPLAN Preplanning allows you to already acquire engineering data in the pre-planning phase. This, for example, includes the actuators and sensors of a plant, machine or a building. You can import data both from external tabular sources as well as plant and machine overviews and furthermore graphically acquire process and instrumentation diagrams. You can also access data that have been collected and enriched in EPLAN Preplanning for downstream planning phases in the engineering.

EPLAN Pro Panel

With EPLAN Pro Panel Professional you conceive and design control system enclosures, switchgear and power distribution systems for the energy supply in 3D. This way you can solve diverse engineering tasks in one software: from the electrical schematic creation through the planning of the mounting layout in 3D to the virtual routing of connections. A variety of data and information for the manufacturing are provided in an automated way - from the component labeling to the support of manual wiring processes.

EPLAN Smart Wiring

EPLAN Smart Wiring is your virtual assistant for manual wiring in the enclosure production. From the connecting point to the exact routing track, the software provides you - as the wirer - with all the required information in digital form - if necessary, also in 3D. You can note the status of the wiring with the traffic light principle. If you need to reassure yourself, you can call up the electrical schematic and counter-check it - on the basis of each individual connection. The provision of the project data on a central server makes it possible to manufacture many identical enclosures in parallel or work together with several wirers.

EPLAN Harness proD

Use EPLAN Harness proD for the efficient design and documentation of cables and wire harnesses. With the software you digitize the typical work processes in cable and wire harness design: From the importing of the connection information as well as the 3D panel layout from the EPLAN Platform through the intuitive routing up to the creation of manufacturing documentation. The software is open for MCAD systems and can in this way be seamlessly integrated into existing system landscapes.

EPLAN Cogineer

With EPLAN Cogineer you gain the full potential from your engineering in a short time as well as increase the quality of your electrical and fluid-power documentation. You use the switching templates you have already created to structure a macro library and with EPLAN Cogineer realize the automatic schematic creation at the push of a button. Profit from the innovative methods with added value in engineering without long implementation - in all industries and in companies of all sizes.

EPLAN Engineering Configuration (EEC)

With EPLAN Engineering Configuration (EEC) you illustrate your product portfolio in a modular system with interdisciplinary function units. On this stable basis, EEC becomes your tool for the design and application of configuration user interfaces as well as the automated creation of documentations. The interdisciplinary working method integrates sales, order processing, mechanical engineering, electrical engineering and control technology as well as production and documentation.

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EPLAN ERP/PDM Integration Suite

Continuous data flows ensure transparency in the product development process. Through the EPLAN Integration Suite, EPLAN manages the integration into existing ERP, PDM and PLM system landscapes. You can optimize your work processes from the schematic through to the master data. The quick and individual provision of the data takes place in bidirectional exchange with the systems, without you having to leave the work environment within the EPLAN platform.

EPLAN eVIEW Free

EPLAN eVIEW Free lets you implement engineering review processes digitally. This free software allows structured collaboration with co-workers, customers and service providers. It enables you to view and comment on changes to a project through redlining workflows by using a browser and irrespective of your location.

EPLAN eBUILD Free

New methodology for your engineering process: With EPLAN eBUILD Free you have the possibility to compile schematics from template libraries with a few clicks. Registered users have this application automatically available as a free service. eBUILD Free offers you predefined libraries and a configurator that allows you to create parts of schematic projects in EPLAN practically at the click of a button.

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EPLAN eBUILD

With EPLAN eBUILD you create your own template libraries which can be re-used by employees and colleagues within the EPLAN Cloud environment. This way you can automatically create schematics in EPLAN across the company. eBUILD is composed of two functional areas which are available to you completely in the full version: In Designer experienced users create their own template libraries on the basis of the EPLAN macro technology. In Project Builder they can then be used repeatedly at any time to compile elements of schematics which are frequently used in day-to-day work with a few clicks.

EPLAN Data Portal

With the EPLAN Data Portal you have direct online access to high-quality product catalogs from a continuously growing pool of notable component manufacturers. All the solutions anchored in the EPLAN platform 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.

EPLAN eMANAGE Free

EPLAN eMANAGE Free is your Cloud application for collaborations across all your projects and locations with colleagues, partners, suppliers and clients. eMANAGE enables you to share EPLAN projects with selected project partners across all teams and across the company in a protected Cloud environment. The solution enables simple uploading of projects from the EPLAN Platform or via web browser.

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EPLAN eMANAGE

Beyond the functions of the free version, the full version of EPLAN eMANAGE offers you practical, functional extensions as well as additional storage for your data. Share project data via eMANAGE at an extended scope - with familiar access control and the same ease of use. Make your master data available with eMANAGE from the EPLAN Platform 2022 and thus make their usage easier for other users. With a click you make current EPLAN projects available in earlier Platform versions as well. This way you allow project partners who do not yet use the current EPLAN version access to the project data you provided in the Cloud.

Note:

The properties and functionalities specified in this performance description are based on the maximum scope of performance of the product including all extension modules, Elements and add-ons. Extension modules, Elements and add-ons are available optionally and separately and as a rule cost an additional fee. For further details of the available product variants please refer to the "Licensing Overview" chapter.

EPLAN Pro Panel Professional

EPLAN Pro Panel Professional is a software-based engineering solution for the design and construction of control system enclosures, switchgear and flow dividing systems for the energy supply in 3D.

Whether on the basis of schematics from the electrical engineering or fluid power designing or on the basis of device tag lists and connection lists that are created by ERP systems, other ECAD systems or manually, for example in MS Excel: With its seamless integration into your PDM or PLM environment, the EPLAN Pro Panel Professional covers the complete scope of performance of the schematic and switchgear construction - from mounting layout in 3D, via the virtual wiring of the components to the individual construction and adaption of copper rails for flow dividing systems.

EPLAN Pro Panel Professional additionally contains comprehensive editing functions for configuration, documentation and management of electrical automation projects in the existing *Add-on* and *Stand-alone* versions. The creation of detailed reports on the basis of the schematics completes the comprehensive documentation for subsequent project phases like manufacturing, mounting, maintenance and service.

EPLAN Pro Panel Professional makes the necessary project reports, drawings and unfolds for the manufacturing available and integrates existing automation technologies of the manufacturing perfectly into the processes of product development and production. This applies to the machining of enclosure parts or copper rails as well as for the controlling of automatic machines in the cable and wire fabrication. Even pioneering technologies such as the automatic equipment of terminal strips or the support of digital assistant systems, for example for the enclosure wiring, are supported.

Note:

The scope of service of the software depends on the current module package, the licensable Elements, the licensable add-on systems and modules and whether the software is available as an add-on system for another EPLAN system or a stand-alone version.

Reliably planned

Whether dynamic collision check or automatic checking of the installation requirements: EPLAN Pro Panel Professional paves the way for professional 3D layout planning. The software shows the devices planned for the mounting layout in a clear structure in navigators or mounting layout lists. With the EPLAN eTouch technology you can spatially adjust the components and position them exactly. Mounting requirements and minimum distances according to manufacturer specification are considered in the same way as the correct positioning of devices, wire ducts and mounting rails.

Flexibly routed

On the basis of the 3D mounting layout, the defined path network and the connection information from the electrical schematic, EPLAN Pro Panel Professional Add-on and EPLAN Pro Panel Professional Stand-alone determines the optimum wiring paths for conductors or cables - including filling level check for the wire ducts. The automatic length determination increases your productivity: Manual calculations are no longer required and the prefabrication of the wires increases efficiency in the manufacturing and mounting processes.

Note:

The definition and the routing of routing connections, the determination of optimal routing tracks and the calculation of the required connection lengths are a part of the optional and fee-based licensable elements "Routing & Production".

Consistency and workflow optimization

On the EPLAN platform the electrical as well as the fluid power project planning and the 3D mounting layout of the enclosure are directly linked together. The electrical devices and devices planned in the electrical and fluid construction are available for placement in the 3D mounting layout. The uniform data basis prevents redundant data maintenance, manual data import, data synchronization, consistency checks or the otherwise required feedback of bill of materials information.

EPLAN platform provides manifold, optional interfaces and enables the data exchange for the integration into the IT structure of your company. This way not only the project engineers achieve the perfect result - the administrative departments and the production also profit from a consistent IT and system environment.

Directly into manufacturing

Optionally, EPLAN Pro Panel Professional Add-on and EPLAN Pro Panel Professional Stand-alone also provides information on the machining of mounting panels, doors or entire cabinet frames. Manufacturing-relevant information on drill holes, threads or cut-outs can be provided automatically in form of drawings, bill of materials and general plans or via optional interfaces directly for your processing machines.

Easily wired

By planning with EPLAN Pro Panel Professional wiring is also performed more easily. Whether for manual or automatic fabrication, all the required information for the conductor fabrication is provided. With the optional possibilities of the output of the data in neutral or machine-specific format, common cable manufacture machines are connected and information is provided for the specialized supplier.

The core features of EPLAN Pro Panel Professional Add-on or EPLAN Pro Panel Professional Stand-alone and the optional licensable elements are described in the following chapters.

However, it is beyond the scope of this document to provide all details. If you have any further questions – particularly on details you don't find in this description – just contact us at info@eplan.help.

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User Interface

Look & Feel

The system provides an intuitive user interface. Through an operating concept that is familiar from the Windows usage and easily understandable functionalities - such as, for example, ribbon, Backstage view, quick access toolbar, drag & drop and online help - even beginners and casual users will feel at home quickly.

Users can easily adapt the entire user interface including window arrangement to their needs and wishes. The settings can be saved and retrieved as workspaces as needed. This allows you e.g. to save defaults for work standards and processes.

Workflow & Integration

The system can be configured by means of settings to meet the needs of the user, companies, and project. The result: The workflow is accelerated and the required work result achieved efficiently.

You also have access to an extensive online didactic help system which provides efficient work support.

Functionalities for the backup of projects ensure the required security for the protection of the work results safety reached. A compression function removes the non-essential data from a project to simplify data maintenance and, if necessary, to protect your company know-how when projects are passed on.

Common data formats, such as TXT, CSV, XLS, XML, PDF and DXF / DWG with layers and blocks are available as interfaces for exchange with Microsoft Office products and CAD programs.

Interfaces facilitate interdisciplinary cooperation.

The program can be integrated into the existing added value chain. The information and work flow can be automated using scripts or API in the ".NET" environment.

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Method

In EPLAN Pro Panel Professional you can find the specific working method and methodology of the planner or planning engineer in switchgear construction.

General methods and procedures:

- Graphical combination of mounting layouts in 3D and the derivation of drawings for manufacturing and mounting.
- Start of the planning in the schematic or optionally in the 3D mounting layout, for example directly on the mounting panel or in the enclosure.
- 3D mounting layout on the basis of electrical-engineering and fluid-power schematics or on the basis of externally provided device tag and connection lists.

The work method changes frequently or is combined between individual projects but also during the project phases. Any editing sequence is possible.

The program is designed so that editing in the system can always follow the actual course of the project. The system allows the project to be edited at any time from different views.

Projects

A project is a database in which the master data used in the project (symbols, plot frames, forms, parts data, etc.) is stored, in addition to the project pages and layout spaces. Schematics and corresponding documents such as lists and overviews are created as project pages within projects.

Analog to the graphical representation of objects on pages, a graphical display area for 3D objects exists for the mounting layout in 3D – the layout space. The layout space allows the view on and the editing of 3D objects.

You can open multiple projects simultaneously and copy pages, layout spaces or sections of pages or layout spaces from other projects.

Basic projects

From the very beginning of a project EPLAN supports the user through the selection of a basic project when norm-compliant documentation is created. Basic projects can contain already standardized schematics, pre-defined settings and pre-set reports.

Project Master Data

The master data pertaining to the project, such as the plot frames, forms, symbols, etc., are stored together with the project.

This ensures that the project is complete and consistent in itself when it is passed on or data is backed up. Bidirectional comparisons with centrally stored master data are possible.

You can therefore monitor and control the master data used and the entire project can, for example, be adapted as required to current standards and defaults.

Project Structure in 3D Mounting Layout

The Layout Space

As well as the logical structure display, there is also a 3D display area that shows the placed device. This display is independent of any project page. The 3D model is displayed in a so-called layout space that allows the 3D objects and their editing to be viewed.

Navigators for the 3D Mounting Layout

3D Mounting Layout Navigator

The 3D mounting layout navigator is used to list the electrical engineering and fluid power as well as mechanical devices available in the project so that they can be placed in a layout space.

All the electrical engineering, fluid power and mechanical devices to which a part is assigned are listed.

The view in the tree view is always effected identifier-based in the 3D mounting layout navigator. The list view is available alternatively.

Parts without a device tag are grouped in a separate node in the 3D mounting layout navigator.

Layout Space Navigator

The layout space navigator provides a logical overview of your project data within the 3D mounting layout.

In the layout space navigator you can create layout spaces in order to view and to place devices independently of project pages in a 3D view. The layout space navigator displays all devices that exist in the layout spaces of the opened project.

The layout space navigator can be used in layout spaces to activate mounting surfaces for the placement of devices, filter the display and control toggling between the tree or list views in the layout space navigator.

3D Mounting Layout

EPLAN Pro Panel Professional 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, as required. In conjunction with mechanical components such as cable ducts, mounting rails, mounting panels, or entire enclosures, EPLAN Pro Panel Professional allows the realization of complex 3D mounting layouts.

Device Placement

Devices are logical electrical-engineering or fluid-power (hydraulic / pneumatic) units that work together. They are named with a device tag (DT), such as M1, K1, X1, XS1, W1. A device consists of one or more functions (motor, coil, NO contact, NC contact, etc.). All functions that have the same DT belong to the same device. One of the functions is the so-called "main function". Parts can be selected / entered at it (exceptions: terminals (parts can only be placed at main terminals), pins, busbar connection points and connections).

If so-called function templates are assigned to the parts, these are displayed at the device in the device navigator.

Devices can be placed in the form of 3D objects in layout spaces, for example on mounting panels, mounting rails, doors, walls, etc.

Typical devices for placement in layout spaces are:

- Mounting panels
- Free mounting panel
- Enclosures
- Mounting rails
- Wire ducts
- Busbar systems
- C horizontal rails
- User-defined rails
- Devices.

Inserting Cut-outs

Cut-outs are manually placed openings in construction items, mounting panels and sheets that are manufactured manually or by automatic systems. Cut-outs do not actually model the 3D body in which they are inserted, but rather visualize a placeholder that penetrates the item and contains all the information on position, orientation and extent of the planned cut-out. NC machines can interpret this information and implement it as manufacturing data and control programs.

Restricted Placing Areas

Parts of mounting surfaces on 3D components in the layout space (mounting panels, enclosure profiles, walls, doors) can be locked for positioning so that part placements cannot occur on them. Locked areas, are self-contained freely definable 3D objects with rectangular limits.

Restricted Drilling Areas

Restricted drilling areas are freely definable areas on 3D components that exclude the determination of drilling coordinates for this area. Cut-outs within these defined locked areas are not displayed in the drilling view or output as NC data and so are not manufactured.

Editing Components Graphically

In the course of the mounting layout in a layout space, EPLAN Pro Panel Professional offers a multitude of functionalities and options to graphically edit 3D objects.

These include:

- Duplicating Objects in the 3D Mounting Layout
- Duplicating Objects in the Layout Space
- Rotating objects freely around selectable axis
- Fitting length-variable objects
- Changing the length of length-variable objects
- Fitting Rails and Wire Ducts.

The described functionalities are only available for certain module packages.
See the Licensing Overview chapter.

Device Logic

3D objects that are to be used as mechanical or electromechanical devices in the 3D mounting layout must have a range of properties that allow them to be used in the mounting layout:

All these properties in their entirety are known as the *device logic*. There are a number of functions available for creating and editing the device logic.

Devices included in the scope of delivery as well as devices that are provided via the EPLAN Data Portal already have these properties.

The functionalities for the definition of the device logic are used after the application of the graphical import and editing functions and prepare the 3D graphic objects - which immediately after import have no logic functions - for use as 3D macros for devices.

Importing 3D Graphic Data

You can import 3D graphic data to create your own items and 3D macros. The item data must be available in the common international STEP format (*ST*andard for the *E*xchange of *P*roduct model data).

Merging Objects in the Layout Space

Source data imported with STEP can contain multiple solids which are then available as individual 3D objects in a layout space. If necessary the individual objects in a layout space can be bundled in a way that they are treated like *one* item during the usage in one 3D macro.

Defining a Mounting Surface

Individual surfaces of imported 3D objects can be defined as *mounting surfaces*. These are areas on the item on which other components can then later be placed.

Defining a Handle

A handle is used to place a 3D macro. In addition to the handles, which are generated automatically for 3D bodies, a user-defined handle can be defined in the macro.

Defining Mounting Points

Mounting points are marked points on 3D objects on which other components can be placed.
Mounting points can have a direction and a rotation, which means that placement of the 3D objects can be controlled using defined rules.

Defining Mounting Grids

Mounting grids are assigned to individual areas of a 3D part placement, and during the placement of other components are displayed on these areas. A placement is then only possible on the resulting intersections of the grid lines.

Defining and Changing Placement Areas

In order to be placed correctly on other 3D objects, 3D macros require information about the area with which they are placed and the direction in which they may have to be turned. This information is stored in the 3D macro by the definition of a *placement area*. The position of the placement area at the 3D macro can simultaneously also determine the mounting depth with which the 3D object is positioned on a mounting surface.

Defining a Base Point

Base points are components of the device logic that, for example, are used in working with enclosure accessories.

Base points are fixed defined mounting points in a 3D object. With base points it is possible to install components at a fixed defined place on another 3D object in the layout space and align it correctly.

Transfer Base Point Scheme

In connection with the creation of enclosures of the Rittal series "VX25", "AX", and "KX", which have been imported into the layout space as STEP data, it is possible to place the required base points automatically in a manner suitable for the enclosure series.

Interpreting and carrying over enclosure logic automatically

During the creation of enclosure series on the basis of STEP data, EPLAN Pro Panel Professional offers the "Automatic enclosure interpretation". This way the existing logic of an enclosure is transfered to another enclosure, to be defined new, of the same design.

In addition to enclosures other devices can also be interpreted automatically in this form and have design-specific logic assigned to them. Logic elements of items from a project other than the active project, for example a macro project, can be used as the interpretation template.

It is furthermore possible to selected an existing part via the parts management as the interpretation template.

Defining Connection Point Pattern in Layout Space

Part placements mostly receive information about their connection points from the definition of the connection point pattern that was carried out in the central parts management.

If a placed part does not have predefined connection points, it is possible to define the connection points on the part placement graphically.

Like all local connection points, the graphically defined connection points, too, can be modified individually (position, connection point direction). The modified connection point data of local connection points can be used to transfer them to connection point patterns in parts management.

Mounting Lists

In EPLAN Pro Panel Professional, you can generate the *Mounting list* report for the 3D part placements of a layout space. Mounting lists are used to map in a report the hierarchical structure of a mounting layout in the layout space. The report can be done for a very specific part placement (mounting panel, enclosure, busbar, etc.).

Mounting List Report

In this function-based report the 3D part placements for which the "Create mounting list" property has been activated in the property dialog are evaluated. This property can be selected via the property selection for all 3D functions (except for mounting surfaces). For devices with the activated property, all devices of the hierarchy level immediately below are listed in the output mounting list.

Checking and Positioning Aids

Using Collision Check

The collision check checks whether items overlap or penetrate each other during placement and editing. It always kicks in when items are placed, moved, copied, duplicated, rotated or extended. Resulting collisions are visualized by coloring the affected items.

- The collision check includes all item types, regardless of whether they are displayed or hidden.
- The collision check can be turned off at any time.
- When placing length-variable items, the collision check is activated after defining the first placement point.
- Intentional collisions are not treated as collisions (e.g., a monitor integrated into a door).
- The safety areas (mounting clearances/ thermal locked zones) defined on a part are evaluated and taken into account by the collision check.
- There is a check run to check for collisions subsequently.

Displaying Mounting Clearances

A mounting clearance can be defined in terms of width, height, and depth in the properties in the parts management. This mounting clearance allows a check to be carried out whether the permissible minimum distances, for example with regard to thermal or electromagnetic requirements, are not exceeded between parts placed beside or on top of one another.

To monitor this, the specified mounting clearances can be shown during placement. They are shown as transparent, surrounding bodies. In the placement options, the handle of a part to be placed can be set relative to the edges of the item (default) or to the mounting clearances.

Displaying Mounting Aids

Mounting aids are the following elements of device logic:

- Handles
- Mounting points
- Base points
- Mounting grid.

Auxiliary Lines

3D lines can be placed in the layout space as auxiliary lines. Auxiliary lines can be used to establish a regular or also irregular grid whose intersections can be used as positioning aids when inserting mounting rails, wire ducts, and devices.

3D lines are placed on mounting surfaces; placement outside of mounting surfaces is possible. As spatial lines, the starting and end points of 3D lines have an additional Z coordinate.

There are different types of auxiliary lines:

- Line "Through 2 points" (defined by starting and end points)
- Line "Parallel through point".

Auxiliary lines can be moved, copied, duplicated and deleted.
Auxiliary lines are displayed in model views.

Connection Preview

The connection preview is useful when placing devices from the 3D mounting layout navigator. A connection line shows which device, already placed, is functionally connected to the device that is about to be placed in the project planning.

Measuring in the Layout Space

The "Measuring" functionality is available for checking the equipment of the mounting panels and enclosures in the layout space. The distance from points and edges can be measured, and the measurement result is displayed in a dialog. This contains the coordinates of both the measured elements, the distances of the measured points and the shortest distance between the two measured elements.

The measurement of the coordinates and the distance from points and edges is output relatively, parallel to a common mounting surface. If the measured points are not on a common mounting surface, the measured values are relative to the origin of the layout space.

Updating the Part Placement

When the part number is replaced in a part placement in a layout space, the part dimensions or the display of the part by a 3D macro have to be updated:

- When the part dimensions change
- When the macro name was changed
- When the image file name has changed
- When a macro itself was graphically changed.

Updating the part placement is supported for devices, mounting rails and wire ducts on mounting surfaces, and for individually inserted mounting panels and free mounting panels.

Editing Legend Items

The 3D mounting layout also has the option of editing legend items and changing numbering.

3D Macros

The macro technique in EPLAN Pro Panel Professional corresponds to the way of working in the EPLAN platform.

The following applies to 3D macros:

- 3D macros are managed in a macro project.
- 3D macros can be created and used as window (*.ema) and / or symbol macros (*.ems).
- 3D macros are always created with the "3D mounting layout" representation type. Creating and inserting with this representation type is only possible in a layout space.
- The 3D macros can be assigned to the parts in parts management. If there is no graphic macro at the part, the graphical can be visualized as a cuboid by entering the height, width, and depth.
- If a 3D macro is assigned to an enclosure, the content of the 3D macro defines the graphic.

Creating 3D Macros

3D macros can be created in the following way:

- Manually by saving selected objects from a layout space
- Automatically from imported STEP files (*.ema only)
- Manually or automatically from a macro project.

Placing 3D Macros

3D macros are placed in the layout space in the same way as devices. These macros can only be placed in an open layout space with the "3D mounting layout" representation type.

Changing Rotation Angle and Handle

When you insert a 3D macro, you can rotate the angle of the macro in 90° increments at the handle. Up to 40 different mounting positions can be implemented with a single 3D macro by changing the handles. These options also apply to devices whose parts have been assigned a 3D macro.

Model Views

The Model views are used for the drawing creation, amongst other for manufacturing and mounting diagrams. Model views can be compiled in templates and specifications for the required dimensionings assigned to them. The drawings including dimensioning and legend required for a manufacturing documentation can also be generated automatically on the basis of the templates.

Additional dimensions, texts, etc. for example in production documents for enclosure production (enclosure equipment) can be added in the model views using standard functionalities of the EPLAN platform.

A model view can be inserted in any page type.

Changing Model Views

You can use the following actions to modify how the content of model views is displayed and arranged:

- Update
- Center contents
- Move contents
- Edit properties
- Show / hide 3D objects.

Updating the Model View

If the contents of the layout space, to which the model view refers, are changed, the message "Model view not up to date" is added to the model view. The model view must be manually or automatically updated to synchronize the contents of the layout space and model view.

Generating Machining Data for Automatic Equipment Systems

Machines and automatic machines for the machining are, for example, drilling, cutting, and milling robots which convert planning information into production processes by means of a control program.

Mounting panels, doors and other equippable enclosure components as well as length-variable items like cable ducts and DIN rails are mostly machined or mechanically cut to length in enclosure design. In the module package EPLAN Pro Panel Professional, manufacturing data for the processing and length-cutting machines by Rittal can be generated in graphical form or NC-oriented and be made available via optional and fee-based machine interfaces.

These integrated EPLAN interface modules transfer graphical information, coordinates and dimensions of drill holes, threads, cut-outs and locked areas as well as further manufacturing data for the processing of components directly to the Rittal processing machines.

Drilling Templates

EPLAN Pro Panel Professional furthermore allows for the output of item-specific drilling patterns in a ratio of 1:1 in PDF files. This template, printed on a plotter or large-format printer in the same size, serves as a template for the manual drilling of the mounting panel.

NC Record

An NC record is the description of an outline that can be manufactured on a machine for the machining of items.

Such outlines are created graphically in the outline editor in EPLAN Pro Panel Professional and equipped with the machine-specific information by generating an NC record.

Mounting Check

To ensure that all relevant information for processing is available, the integrated mounting check verifies whether all items that were placed on NC relevant areas have the required drilling pattern. This check is done via a check run.

Drill Exceptions

In machine-based manufacture, it depends on the machine in use whether the required outline type can be created. For example, a laser can produce sharp-edged hexagons, whereas a milling cutter cannot. This is not set definitively in the parts data, because it is not known yet which machine will later be used for manufacturing.

Specific drill exceptions can be defined in the settings for each machine, for NC output, for DXF output and drilling templates. This way, cut-outs and outlines that cannot be manufactured on one machine are replaced by another type that the machine can manufacture.

When exporting NC drill data, then, the alternatives are exported rather than the originals. In the case of real machines, after the exception, alternative machining processes triggered by missing tools are also selected (if the thread cutter is missing, drill only core hole, etc.).

Generating Manufacturing Data for Machining

Through interfaces EPLAN Pro Panel Professional allows the output of manufacturing data for processing machines of different manufacturers as well as a general graphic output in a special NC DXF format.

You can find an overview of these interfaces in the "Licensing overview" chapter.

Inserting 2D Drilling View

The drilling view is a form of the model view that is specialized on the visualization of information for machining in the form of drill holes, threads, cut-outs or outlines. It shows the relevant data, drill holes, cut-outs, as well as outlines of basic items and parts. Dimensioning can be inserted into the drilling view.

Generating Mounting Data for Terminal Placement Machines

An integrated interface allows EPLAN Pro Panel Professional to output data for the automatic placement of terminals on mounting rails.

You can find an overview of this interface in the "Licensing overview" chapter.

Routing Connections

Generating Routing Connections

Electrical and fluid power connections that are defined in the schematic, that were defined freely in the 3D space or that were taken as connection lists from other programs, can be routed in a layout space.

Routing means the generation of so called routing connections of the "3D mounting layout" representation type. A routing connection has all the properties that a multi-line connection also has, but it additionally contains information about its routing track and a 3D visualization.

Routing connections are displayed in the layout space in their conductor color and with their external diameter. If neither is defined, a default representation will be displayed.

For connections of a single-line representation type, routing is not possible, and the option is deactivated.

The definition and the routing of routing connections as well as the functionalities described below for routing are a part of the optional and fee-based extension module "Pro Panel Process Wiring" in **Elements: Routing & Production**.

Displaying Connection Points Graphically

Defined connection points at 3D part placements can be rendered visible in the layout space.

In the graphical display, connection points cannot be deleted, moved or duplicated. Connection point data are changed in the property dialog of the part placement or in the connection point pattern in the parts management.

Generating a Routing Path Network

A so called routing path network is required for the ordered and automatic routing of connections in a layout space.

Graphical objects in a layout space in which a connection is routed, form the basis for the automatic creation of a routing path network. Wire ducts are, for example, equipped with routing paths automatically.

By adding appropriate routing paths the routing path network can be extended, also spatially. This way several individual areas can be connected to each other, for example mounting panel and door. After modifying the course of the routing paths, the routing path network has to be generated again with the action "Generate routing path network".

Inserting Routing Paths

Routing paths are automatically or manually inserted default paths along which connections can be routed.

Manual routing paths are not linked to wire ducts, etc.

Inserting Curves

Curves are manually inserted default paths along which electrical engineering and Fluid power connections can be routed.

Curves are not bound to wire ducts, etc.

Inserting Routing Ranges

Routing ranges are part of the routing path network. In routing ranges connections are not routed along the course of a routing path. Instead the shortest possible direct connection is always routed. This way, for example, it possible to implement wiring on the back of a mounting panel.

Inserting Wiring Cut-outs

Wiring cut-outs are used to steer connections during routing to the back of a mounting panel or of a door.

Using Connection Filters

Wire ducts, routing paths, routing ranges, and wiring cut-outs have the "Connection filter" property. The connection filter is used for routing to control which connections may be routed through the routing track. The criteria and the associated values can be defined and can, for example, be color assignments of wires or voltage values.

Displaying Routing Path View

Routing path view is defined as the highlighting of the currently valid routing path network. The routing path view can be displayed in full or filtered through the respective valid connection filter.

Optimizing Nets Automatically

With automatic optimization, the connections of the net / daisy chains are redesigned in such a way that the following conditions are met:

- All connection points continue to be connected.
- The sum of the wires to be routed is a short as possible.
- No more than connections terminate in a connection point.
- A daisy chain is always generated.

Connection Filter for Routing Path View

In connection with the display of the routing path view, you can set in the connection filter the criteria to be considered for the routing path view. Connections that correspond to the activated criteria are hidden. Non-activated ones are displayed transparently.

Routing Connections

Routing generates routing connections between the 3D part placements that follow the real course of the wires and cables in the routing path network. If there are no connection points defined for a suitable part placement, they will be generated prior to the routing.

Apart from the routing track, the length of wires is also determined. All information thus determined can be used as wiring instructions or to control wire fabrication machines.

Routing Connections Freely

The function for the free routing of connections allows you to route wire, cable or also tube connections freely in the layout space without any prior definition of a routing path network or the use of wire ducts.

Freely routed connections can be realized as wires and cables between electrical engineering items as well as tubes between Fluid power items.

Free routing of connections forms part of the extension module "EPLAN Pro Panel - Process Wiring" is part of the optional and fee-based licensable **Elements**: **Routing & Production**.

Displaying Fill Capacity

The "Display fill capacity" function provides indications on the space reserves in wire ducts and along manually defined routing paths of a routing path network.

Basis of the calculation are on the one hand the cross-sections of the involved cable ducts. On the other hand an enveloping rectangle is calculated around each connection cross-section.
The basis for the calculation of the fill capacity is that the connections are first laid horizontally and then vertically from bottom to the top of the cable duct. A warning is effected if the preset fill capacity is reached.

The real behavior of wires, routing tracks in the cable duct selected by the wirer or the overlapping of wires in the junction area are not considered.

In this form the fill capacity calculation can be considered as a guide for the wiring of connections, not as an exact calculation of the fill capacity.

The fill capacity limit and alert limit are project settings and thus adjustable.

Updating the Fill Capacity

After each modification to the routing path network of routed connections, the fill capacity has to be calculated again.

Bundling Connections

There are two methods for bundling routing connections:

- In the case of *Automatic bundling*, bundle numbers are determined by the program and written into the "Bundle" property of the routing connections.
- In the case of *Manual bundling*, bundle numbers are entered by the user manually in the "Bundle" property of the routing connections.

Using the optional interfaces for wire fabrication, you can evaluate this information and transfer it to the manufacturing robots or service providers that produce the correspondingly combined and labeled bundles.

Generating Manufacturing Data for Wire Fabrication Machines

Through optional, fee-based interfaces EPLAN Pro Panel Professional allows for the output of manufacturing data for wire fabrication machines of different manufacturers and for sharing it with service providers:

- Rittal (Rittal Wire Terminal WT)
- Komax (Zeta machines)
- Schleuniger (Easy Production Server)
- Steinhauer/nVent PWA (Personal Wiring Assistant)
- CadCabel
- Metzner (Triathlon Kabelcenter).

The described functionalities are only available for certain module packages.
See the Licensing Overview chapter.

Generating a general wires parts list

In addition, it is possible to configure and output a "General wires parts list". The provided data can be used by manufacturing machines, for the purposes of automatic cutting to length, labeling and production of conductor ends of wires. The wires parts list contains the information on connections between the devices, on part numbers, on the routing path and connection length:

- Wire number
- Starting device with unique DT
- Connecting point of such device
- Target device with unique DT
- Connecting point of such device
- Part number of the wire
- Length of wire
- Starting direction from the connecting point of the first device
- End direction to the connecting point of the second device
- Bundle number

Exporting Manufacturing Data for Rittal C8+ Length-cutting Machines

The provision of manufacturing data for Rittal semi-automated machines of the type C8+, for cutting wires to size, is effected with the integrated "EPLAN Interfacing" functionality to generate reports and output labeling.

As of version 2.8 EPLAN Pro Panel Professional offers a pre-defined labeling scheme for external reports, in which all required format elements and settings for the manufacturing data export are stored. In this form the required manufacturing data for the Rittal C8+ length-cutting machines can to be output repeatedly with the same settings.

Precondition:
The fitting AS Manager Software is installed on the Rittal C8+ length-cutting machines.

EPLAN Project Processing – Importing Devices

The optional and fee-based **Elements: Routing & Production** with the "Pro Panel Project Processing" extension module makes it possible to import data from external programs (other CAE systems, ERP systems, MS Excel, etc.) into an EPLAN project.

It is possible on the basis of these imported device data to create a mounting layout including routing connections even without a schematic.

In addition to the device tag lists, terminal lists and wiring lists with the file name extensions TXT and CSV, as well as text files with the file name extension ASC are imported.

MS Excel files can furthermore be read in directly.

EPLAN Pro Panel Copper – design of busbars

With the optional and fee-based extension module "Pro Panel Process Copper" in **Elements: Copper Design**, individual copper rails and connection elements can be designed in 3D. The necessary expertise about materials, manufacturing techniques or manufacturing machines can be stored in EPLAN, and can be utilized as part of special planning assistance and to verify the construction.

The "Pro Panel Process" module offers you the following options:

- Configuration of busbar systems on the basis of system technology components of various busbar system manufacturers such as Rittal.
- Precondition: The manufacturer data are available in EPLAN Pro Panel Professional and are provided in suitable form through the parts and accessories management.
- The shape and form of copper items can be defined individually and adjusted for the circumstances in the enclosure.
- Length and angle changes and associated moving of bending positions can be effected directly on the item.
- The manufacturing data of the individually constructed copper items are provided via optional and fee-based machine interfaces and transferred to cutting, bending, milling, punching, or also drilling machines.

Creating Manufacturing Data for the Processing Machines

The optional and fee-based interfaces allow EPLAN Pro Panel Professional to output manufacturing data for the machining of copper rails on machines of various manufacturers.

The data format of the Copper NC interface is open and manufacturer-neutral and can be adapted by machine manufacturers without additional or license costs.

The following export interfaces have to be licensed together as **Elements: Copper Design**:

- Pro Panel Process Copper
- Pro Panel Production Copper DXF
- Pro Panel Production Copper NC

EPLAN Pro Panel 3D Data Export

Exporting EPLAN Pro Panel Data to 3D PDF

The EPLAN PDF export provides the option of outputting the 3D contents of the layout spaces of a project in addition to the pages of an EPLAN project. In the case of a PDF export of the layout spaces, one additional page will then be added at the end of the page data for each layout space.

Free viewers, such as Adobe Acrobat Reader, make it possible to display the embedded 3D data of the PDF file, to rotate the contained 3D mounting layouts or to navigate in the shown model structure. The respective display and navigation possibilities depend on the viewer.

Exporting 3D Graphic Data in STEP Format

The STEP export writes the geometry of a layout space's 3D components into a file in the STEP format. Information about the solids, analytic surfaces and volumes is transferred in as far as it is available in the EPLAN 3D macro. The exported data can be imported into external CAD systems and be visualized there.

Exporting Wiring Data in EPDZ Format

As of Version 2.9, EPLAN Pro Panel Professional offers the possibility to export a project via a "Pro Panel Production Smart Wiring" interface, a part of the optional and fee-based, licensable **Elements: Routing & Production** – by exporting a file of the EPDZ file type.

The EPDZ file contains, in compressed form, the complete project structure (project properties, page properties, layout space properties, function properties), as well as project pages and 3D graphic data. The 3D graphical data contain the 3D data for the 3D layout space, the 3D mounting layout and, if appropriate, the 3D routing connections.

By means of the optional and fee-based software EPLAN Smart Wiring, a browser-based software solution for the support of manual wiring in the enclosure production, the wiring information from the EPDZ data package can be visualized and edited. Further information on this application as well as its hardware and software requirements can be found in the performance description of EPLAN Smart Wiring.

EPLAN Thermal Design Integration – Virtual Planning, Dimensioning and Validation of Climate Control Solutions

EPLAN Thermal Design Integration is a concept for the virtual planning and dimensioning of energy-efficient climate control solutions and for the validation of mounting layouts of switchgear:

EPLAN Thermal Design Integration makes available functionalities, extended product data, sets of rules and software-based decision-making tools to support the planner and to validate the planning results:

- Determination of the total power dissipation of all the devices
- Visualization of the power dissipation density in order to avoid hot spots
- Determination of the power dissipation layout for optimal configuration of the components in the enclosure
- Utilization of the extended Rittal parts data for climate control solutions via EPLAN Data Portal
- Display of the optimal air-conditioned area per climate control component in which the components are to be laid out in the enclosure
- Airflow-specific reserved areas per climate control component for optimizing the cooling air circulation and for protecting the components against overheating or undercooling.

The described functionalities are only available for certain module packages.
See the Licensing Overview chapter.

RITTAL and EPLAN solutions through AutomationML

The existing program functionalities between RITTAL solutions and EPLAN Pro Panel Professional / EPLAN Pro Panel Production are used for data provision between the systems using the standard data format AutomationML.

Scope of the performance:

- Manufacturing data export from EPLAN Pro Panel Professional / EPLAN Pro Panel Production for RiPanel Processing Center (suitable for Perforex Milling Terminal MT and processing center Secarex AC 18) of RITTAL.
- Data exchange between EPLAN Pro Panel Professional / EPLAN Pro Panel Production and enclosure configuration tool of RITTAL.

The described functionalities are only available for certain module packages.
See the Licensing Overview chapter.

EPLAN 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.

General Reports

- Table of contents
- Title page / cover sheet
- Structure identifier overview
- Plot frame documentation
- Forms documentation
- Symbol overview
- Connection list.

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
  Shows single-line predefined cables multi-line with male pin assignment.

Revision Overview

- The revision overview outputs the data of the revisions in the project.

EPLAN Interfacing

For the visual identification of devices and connections, directly on the plant site, it is necessary to label them.

Identifying and descriptive information about parts and connections can be prepared for labeling automatically. The data is then output in external applications such as Excel.

EPLAN Article Reports

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

EPLAN Overview Reports

Overviews

The automatic overviews provide a quick, accurate list of the parts used in the schematic.

- Cable overview
- Plug overview
- Terminal-strip overview.

Potential & Signal Overview

- The potential overview outputs the project data on potentials and signals.

EPLAN 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.

EPLAN Multiuser

EPLAN Multiuser allows several users the possibility 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.

EPLAN Administration

Settings

The EPLAN platform allows you to configure the program via settings to adapt it to individual requirements and needs. The settings are divided into four main categories, which are themselves divided into sub-categories. This subdivision is displayed as a tree view in the settings dialog.

- Project-specific settings
- User-specific settings
- Workstation-specific settings
- Company-specific settings

The settings enable you to adapt the system's appearance and behavior to different working methods and specifications.

Form & Plot Frame Editor

Forms display information or results of report runs in graphical form.

Unlike forms, the plot frames define the logical structure of the schematic, i.e. the header, page size and division into rows and columns are specified by assigning a plot frame to a project page.

Forms and plot frames consist of static or dynamic elements such as rectangles, lines, inserted image files, etc. Apart from graphics, you can also insert macros and symbols into a form or plot frame which are edited in the usual way like the corresponding objects on schematic pages.

The form editor can be used to adapt plot frames and forms easily to company specifications.

Compressing a Project

In the course of project planning, project data is often generated which is no longer used in the project when planning is finished. This data can be removed from the project using the compression function.

When compressing data, the system checks which project data is used in the system and whether the data is consistent. Other project data are removed so that only the data used in the project remain. You can of course specify which project data should be removed.

Elements: Select +

The optional and fee-based Elements: "Select+" includes the functionalities and options described below.

EPLAN PLC & Bus Extension supports the user in managing 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 in 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.

Network Structure

The defined network structure can be mapped with symbols on a single-line schematic page graphically. The system then manages the bus IDs with the dependencies of the slave and master configuration. Different communication protocols can be defined directly at the bus plug.

The described functionalities are only available for certain module packages.
See the Licensing Overview chapter.

PLC Data Exchange

Various exchange formats, amongst other AutomationML, are available for the exchange of PLC configuration files with external PLC configuration programs.

You can plan the assignment of the PLC card to the rack slot / module in the same way as the bus cable and the type of station of the node model number. The PLC navigator shows which racks and PLC cards are used to form the network structure in the hardware.

Automatically Generating Schematics from PLC Data

PLC functions can be imported from a PLC configuration file or created interactively in the PLC navigator. Assignment lists and hardware configurations from the PLC configuration programs of the manufacturers are used as source data. The Elements "Select+" allows automatic placement of PLC functions and allows the generation of PLC schematics including overview pages at the click of a button.

This allows PLC configurations to be created using special PLC configuration programs which can then be imported into EPLAN and used to generate a schematic automatically. Schematics, PLC overviews, and hardware structures are automatically generated as target data.

Reports can be created in the form of PLC diagrams and PLC card overviews.

The PLC diagram provides information on PLC connection points of the PLC card. One diagram can be created per PLC card.

The PLC card overview represents the physical cards of the PLC, which are detailed in the distributed schematic view by the individual PLC boxes. It graphically displays which inputs / outputs are occupied and which are available, which function these perform, and on which schematic page they are displayed. This type of overview can contain a different number of inputs and outputs, depending on the manufacturer and type.

EPLAN Single Line offers the possibility of creating single-line schematics as part of the project documentation.

This simplifies the creation of higher-level function overviews considerably. There cables, terminal strips and plugs can be defined in advance in order to be included later in the detailed schematic. Single-line representations are also often used to represent the current distribution simply and structured and thus also to determine the protective values.

The system can be used to create single-line representations from macros for graphical pre-planning amongst others. This allows you to create a complete overview very quickly at the start of project planning and therefore simplify the planning of parts to be ordered in advance. If required, the detailed interconnection of items can also be stored in table form in the database in the single-line representation.

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

EPLAN Netbased Wiring allows the planning of the wiring of the components in a plant from the functional view in tabular form. With the so called point wiring you represent which items / connection points that are connected to each other 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.

Elements: Collaboration

The optional and fee-based Elements: "Collaboration" includes the functionalities and options described below.

EPLAN Revision Management allows to automatically record and document modifications at existing projects using a revision control. 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.

EPLAN Project Management offers the possibility of project management across multiple devices in a local client/server infrastructure. Project-specific and non-project-specific information can be stored and displayed in the project management. Projects which are provided via the EPLAN Cloud Service eMANAGE cannot be managed.

To find existing projects via project management from other workstations, the header data of the EPLAN projects can be read into a project management database.

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

EPLAN 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.

EPLAN Multi Language Translation offers the possibility to output mono- or multilingual schematic documentation.
Texts within an EPLAN project are automatically translated. 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.

Elements: Professional+

The optional and fee-based Elements: "Professional+" includes the functionalities and options described below.

EPLAN Multiuser Management

Extensive projects are often edited at the same time by several person 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. In this use case the "EPLAN Multiuser Management" module reduces the amount of data for the individual user.

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 he or she wants to work, or the assignment is done centrally by an administrator.

Subproject Management

With Subproject Management extensive projects can be divided into smaller sub-projects and edited. These subprojects can then be edited independently of the overall project.

The described functionalities are only available for certain module packages.
See the Licensing Overview chapter.

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 "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 receive a complete documentation.

EPLAN Multiuser-Monitor offers additional transparency and an overview of the current editing steps, in particular when editing projects with multiple users. For actions with a corresponding execution time (for example check runs, reports etc.), the multi-user monitor shows the status of the action.

EPLAN Multiuser-Monitor provides information which users are active in which project and which actions are performed by whom in the project.

EPLAN Project Options 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.

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.

EPLAN Project Reference supports the collaboration between client and supplier.

The 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.

The following criteria can be used for a project comparison:

- Is the project free of errors? A project is free of errors if none of the scheduled check runs generate messages.
- Are the project-related settings unchanged?
- Are the project data properties unchanged?
- Are they compliant with the project planning specifications?

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

EPLAN User Rights Management

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

The usage of dialogs, menu items and commands of the user interface can be restricted using **EPLAN User Rights Management**.

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.

If you want to work with the rights management, the Elements: "Collaboration" has to be used at all EPLAN workplaces in the company. This is the only method of ensuring that a user cannot circumvent the defined rights structure.

Elements: Routing & Production

The optional and fee-based Elements "Routing & Production" includes the functionalities and options described below.

EPLAN Pro Panel Project Processing makes it possible to import data from external programs (other CAE systems, ERP systems, MS Excel, etc.) into an EPLAN project.

EPLAN Pro Panel Process Wiring allows the routing of electrical and fluid power connections in a layout space in 3D.

Components of the module are the definition of routing path networks, the routing of routing connections, optimization of the networks and routing connections up to the provision of wire parts lists for manufacturing as well as the provision of connection information for EPLAN Smart Wiring.

EPLAN Pro Panel Process Tubing allows the following actions:

- Defining the connection point pattern graphically and assigning pneumatic as well as hydraulic components
- Definition of routing path networks for the routing of hoses and pipes in 3D
- Optimizing the routing of hoses & pipes in 3D
- Reporting and Outputting Piping and Tubing Lists
- Exporting hosing information for EPLAN Smart Wiring.

The described functionalities are only available for certain module packages.
See the Licensing Overview chapter.

EPLAN Pro Panel Production Piping is used to hand over the piping information to the manufacturing. To transfer and further process data through software-supported pipe bending machines, EPLAN Pro Panel Production Piping provides one XML file with the required data per piping.

Pro Panel Production Rittal Wire Terminal WT allows the output of manufacturing data for the wire fabrication machine Wire Terminal WT by the manufacturer Rittal. The export format provides the required data for the wire fabrication machining.

Pro Panel Production Smart Wiring includes the possibility to export an EPLAN Pro Panel project for further processing with the software-based assistance system EPLAN Smart Wiring.

Note: The functional scope EPLAN Pro Panel Production Smart Wiring includes the interface communication of EPLAN Pro Panel Professional to EPLAN Smart Wiring and it is not a license of the EPLAN Smart Wiring product.

Elements: Copper Design

The optional and fee-based Elements "Copper Design" includes the functionalities and options described below.

With **EPLAN Pro Panel Process Copper** you can design individual copper rails and connection elements in 3D.

The two interfaces **EPLAN Pro Panel Production Copper DXF & EPLAN Pro Panel Production Copper NC** allow the output of manufacturing data for the processing of copper rails on automatic systems by different manufacturers.

Elements: Wire Production

The optional and fee-based Elements "Wire Production" includes the functionalities and options described below.

The **Elements: Wire Production** includes the output of manufacturing data for wire fabrication machines and wire fabrication processes of the following listed manufacturers and service providers:

- Komax EPLAN Pro Panel Production Wiring Komax
- Schleuniger EPLAN Pro Panel Production Wiring Schleuniger
- Steinhauer/nVent EPLAN Pro Panel Production Wiring Steinhauer PWA
- CADCABEL EPLAN Pro Panel Production Wiring CadCabel
- Metzner EPLAN Pro Panel Production Wiring Cabel Center

Available add-on modules

EPLAN Pro Panel NC DXF is the optional and fee-based export interface which allows the output of manufacturing data for processing machines of different manufacturers as well as a general graphic output in a special DXF format from the EPLAN Pro Panel.

EPLAN API Extension

The optional "EPLAN API Extension" extension module allows you to control EPLAN externally through a programming interface or to extend and customize it customer-specifically. The program functions available in EPLAN are structured in modules. They can be addressed directly from other programs through the programming interface. It is also possible to integrate customer-specific extensions into the EPLAN user interface.

You generally only need a text editor and a ".NET Compiler" for this functionality. For development support, we recommend an integrated development environment such as "Visual Studio".

Languages supported by .NET can be used as programming languages. The code can be directly loaded, compiled, and executed in the system as a script.

The programming interface can be used to adapt the system very much to your requirements. Maximum integration is achieved in this way, reducing work processes and accelerating the workflow.

Elements: Data Portal

In connection with an optional and fee-based EPLAN Software Service or EPLAN Subscription contract, the Elements "Data Portal" offers the functionalities and options described below.

EPLAN Data Portal makes web-based device data and master data of notable manufacturers available for direct inclusion in the EPLAN Platform. In addition to alphanumeric parts data, these master data also contain schematic macros, multilingual parts information, preview images, documents, etc.

The data provided by the manufacturers is integrated directly into the EPLAN Platform when downloaded. The option to download each part and component selectively ensures a clear structure and specific updating of your personal parts management.

The EPLAN Data Portal simplifies considerably for the designer the integration of parts data with the engineering process. While planning, the engineer can directly access master data that has been classified and checked for EPLAN compatibility, without time-consuming searching of manufacture catalogs, which thus reduces the project planning time.

EPLAN EDZ format

Import and export formats for EPLAN parts records.

EPLAN ECLASS import

ECLASS-based import of EPLAN parts records.

Hardware Requirements

Workstation

The computer platform is a PC with an Intel Core i5, i7, i9 or compatible processor. Rather select a high-speed computer with less CPU cores than a slower computer with more CPU cores.

Recommended Workstation Configuration

Processor:	Multicore CPU, not older than three years
RAM:	16 GB
Hard disk:	500 GB
Monitor / graphics resolution:	2-screen solution with a resolution of at least 1280 x 1024 recommended 1920 x 1080
3D display:	Graphics card from ATI or Nvidia with the latest OpenGL driver

Network

We recommend using a Microsoft Windows network.

Net transfer rate of the server:	1 Gbits/s
Net transfer rate of the client computer:	100 Mbits/s
Recommended latency	< 1 ms

Multi-user

With regard to minimum requirements for multi-user operation, please contact EPLAN Support. We can advise you specifically according to your individual requirements.

Software Approvals

In the current Version 2022 the programs of the EPLAN platform are available as a 64-bit version.

Operating Systems

The EPLAN Platform supports the 64-bit variants of the Microsoft operating systems Windows 10.
The EPLAN user interface language installed must be supported by the operating system.
The Microsoft .NET framework 4.7.2 is required to operate the EPLAN platform.

The program is identified by EPLAN as compatible in accordance with the requirements specified in this performance description on the following operating systems:

Workstation

- Microsoft Windows 10 (64-bit) Pro, Enterprise
  Version 1809, 1903, 1909, 2004, 20H2

Server

- Microsoft Windows Server 2012 R2 (64 bit)
- Microsoft Windows Server 2016 (64 bit)
- Microsoft Windows Server 2019 (64 bit)

Citrix-Server

- Terminal-Server with Citrix XenApp 7.15 and Citrix Desktop 7.15

Microsoft Office Products

Prerequisite for the creation of Microsoft Office file formats from EPLAN is that an executable MS Office version that is identified by EPLAN as compatible in accordance with the requirements specified in this performance description is installed on the computer.

- Microsoft Office 2016 (64 bit)*
- Microsoft Office 2019 (64 bit)*

*Please observe the notes in the information portal (www.eplan.help).

SQL Server (64-bit)

- Microsoft SQL Server 2016
- Microsoft SQL Server 2017
- Microsoft SQL Server 2019

PDF Redlining

- Adobe Reader Version XI
- Adobe Acrobat Version XI Standard / Pro
- Adobe Reader Version DC
- Adobe Acrobat Version DC Standard / Pro

Licensing Overview

✓ Standard functionality O Optional - Not available

EPLAN Pro Panel	Professional Add-on	Professional Stand-alone
Electrical configuration	**Precondition:** EPLAN Electric P8	✓
Fluid power configuration	**Precondition:** EPLAN Fluid	**Precondition:** EPLAN Fluid
EPLAN Graphical Reports	–	✓
EPLAN Overview Reports	–	✓
EPLAN Article Reports	–	✓
EPLAN Assembly Reports	–	✓
EPLAN Interfacing	–	✓
EPLAN Administration	–	✓
EPLAN Multiuser	–	✓
3D Mounting Layout	✓	✓
STEP Import	✓	✓
STEP Export	✓	✓
Process NC	✓	✓
Pro Panel Production NC Perforex BC / Secarex	✓	✓
Pro Panel Production NC Perforex LC / Secarex	✓	✓
Pro Panel Production Rittal Athex	✓	✓
Thermal Design Integration - View Data	✓	✓
EPLAN Harness proD Extension	−	✓

The described functionalities are only available for certain module packages.
✓ Included O Optional − Not available

Licensable elements	Professional Add-on	Professional Stand-alone
Compact +	–	–
Mounting Panel		
Overview Reports		
Multi-user		
Select +	-	O
PLC & Bus Extension		
Single Line		
Netbased Wiring		
Collaboration	-	✓
Revision Management		
Project Management		
Change of Standard		
Multi Language Translation		
Professional +	-	O
Multi User Management		
Multi User Monitor		
Project Options		
Project Reference		
User Rights Management		

The described functionalities are only available for certain module packages.
✓ Included O Optional − Not available

3D Panel Layout	–	–
Pro Panel (Add-on)		
STEP Import		
STEP Export		
Ultimate*	–	–
FieldSys		
Fluid (Add-on)		
Preplanning Professional (Add-on)		
Pro Panel (Add-on)		
STEP Import		
STEP Export		
Routing & Production	O	O
Pro Panel Project Processing	Requirement is a license "EPLAN Pro Panel Professional"	
Pro Panel Process Wiring		
Pro Panel Process Tubing		
Pro Panel Production Piping		
Pro Panel Production Smart Wiring		
Pro Panel Production Wiring - Rittal Wire Terminal		

The described functionalities are only available for certain module packages.
✓ Included O Optional − Not available

Copper Design	O	O
Pro Panel Process Copper	Requirement is a license "EPLAN Pro Panel Professional"	
Pro Panel Production Copper DXF		
Pro Panel Production Copper NC		
Wire Production	O	O
Pro Panel Production Wiring Komax	Requirements are a license "EPLAN Pro Panel Professional" and the Elements "Routing & Production"	
Pro Panel Production Wiring Schleuniger		
Pro Panel Production Wiring Steinhauer PWA		
Pro Panel Production Wiring CadCabel		
Pro Panel Production Wiring Cable Center		

Licensable add-on systems and modules	Professional Add-on	Professional Stand-alone
FieldSys	-	-
Pro Panel Production NC DXF	O	O
EPLAN Fluid (Add-on)	-	O
Pro Panel Professional (Add-on)	-	-
Preplanning Professional (Add-on)	-	O
Cogineer	-	O
Cogineer Advanced	-	O
API Runtime	-	O
Data Portal	-	O
Design Space Exchange	O	O

Errors and changes reserved.

The described functionalities are only available for certain module packages.
✓ Included O Optional − Not available