Performance Description
Contents: EPLAN Electric P8 Version 2.5
Status: 09/2015
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Introduction

EPLAN Software & Service develops CAE solutions and advises companies in the optimization of their engineering processes. Customers profit from increases in efficiency in the production creation process through standardized procedures, automated processes and consistent workflows. EPLAN supplies customized concepts for system introduction, setup as well as made-to-measure integration into the IT / PLM system landscape – on the basis of standard engineering solutions.

The service portfolio furthermore encompasses customizing, consulting and training. The development of individual and standardized ERP and PDM interfaces to the PLM integration ensures data consistency in the product creation. Consistent customer orientation, global support and innovative development and interface competence are factors in success. EPLAN belongs to Rittal Software Systems and thus to the Friedhelm Loh Group and thus stands for continuity and investment security:

Optimized engineering processes are our promise. – Customized and practical.

We Develop Solutions for More Efficiency

Globalized markets, higher cost and time pressure as well as increasing competition permanently place pressure on companies to work more efficiently. As the only way to meet the challenges in their branch and achieve their ambitious targets such as leadership in innovation, worldwide growth and operational excellence.

In the pursuit of these targets unused potentials are often found in particular in engineering that have an effect on the entire process of product development process.

Under the motto "EPLAN – efficient engineering" the company has been developing practice-oriented engineering solutions and individual concepts for optimizing engineering processes for its customers for more than 30 years. With competence and experience EPLAN advises companies with the aim of perfectly synchronizing processes, reducing project durations and lowering engineering costs. More than 45,000 customers of various sizes and from different
branches nowadays rely on EPLAN and its products daily to secure their competitiveness and the future of their company in the long term.

Ensure that you have a decisive head start against your competitors and increase the efficiency of the engineering processes in your company sustainably!

**EPLAN Platform – Your Key to Success**

The EPLAN Platform interconnects expert systems for the various disciplines such as electrical, fluid power and E-I&C engineering as well as enclosure manufacturing. Thus all applications are supplied with the same basic data and editing functions, ensuring high project quality and a mechatronical working method.

**EPLAN Electric P8**

EPLAN Electric P8 is a CAE software solution for designing, documenting and managing electrical-engineering automation projects.

**EPLAN Fluid**

EPLAN Fluid is a CAE software solution for designing and documenting fluid-plants in the fields of hydraulics, pneumatics, cooling and lubrication.

**EPLAN Pre-Planning**

EPLAN Preplanning is a CAE software solution for the technical pre-planning of machines and plants. The software supports graphical and database-based working methods with data transfer to the interdisciplinary detailed planning. Individual system configuration allows flexible customizing to established engineering processes.

**EPLAN Preplanning P&ID**

EPLAN Preplanning P&ID is a CAE software solution for creating plant overviews, PFDs (Process Flow Diagrams) and P&IDs (Piping and Instrumentation Diagrams) for process-engineering machines and plants.

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EPLAN Pro Panel

EPLAN Pro Panel is a CAE software solution for configuring and verifying enclosures and switch gears in 3D including the provision of data for material logistics and production integration.

EPLAN Harness proD

EPLAN Harness proD is a CAE software solution for efficient designing and documenting of cables and wire harnesses in 3D / 2D, from a digital prototype to the creation of complete production documents.

EPLAN Engineering Configuration One

The use of EPLAN Engineering Configuration One (EEC One) is the first step into the world of automated Excel-based schematic generation for electrical engineering and fluid power on the basis of predefined standards such as EPLAN macros, value sets, variants.

EPLAN Engineering Configuration

EPLAN Engineering Configuration Professional (EEC Professional) is a type of "central control unit" that forms the bridge between mechanical engineering, electrical engineering and control technology as well as documentation. A modular system and a set of rules allow variant management in machine and plant engineering.

EPLAN Data Portal

Integrated, web-based data platform for the provision of up-to-date device data of leading component manufacturers for direct use in the configuration with EPLAN software solutions.

Our software is conceived as an integrated system and connects all disciplines.

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EPLAN Electric P8 – Innovative and Flexible

EPLAN Electric P8 offers innovative possibilities for designing, documenting and managing electrical-engineering automation projects. With optionally graphical- or device-oriented editing and a consistent platform technology, the high-end system sets standards in the future of electrical engineering. Interdisciplinary working becomes reality thanks to its scope of functionalities and the direct interlinking of all trades.

The working methods in electrical design are as manifold as the tasks at hand. Each procedure in the planning process has its advantages in specific project phases – whether while generating first graphical machine / plant overviews, creating schematics or including project information in the database, independently of the graphics. Ideal if an engineering system supports these different planning approaches on a par and parallel. You decide which working method is the most efficient for you, and EPLAN ensures complete consistency in project data irrespective of your approach.

Once recorded in the schematic, the project data form the basis for almost automatic completion of the machine and plant documentation. Through extensive and individually configurable check runs you check the documentation against quality requirements defined by you at the click of a button. EPLAN supports rapid revision and corrections through central recording of the check results in the message management. EPLAN automatically creates detailed reports as an integral component of the comprehensive documentation during the project course or in concentrated form at the project completion. This way all the required information is supplied from the engineering phase to the downstream process phases – from the consistent product development process though to manufacturing, mounting, commissioning, maintenance and servicing.

Monheim, September 2015

Product Management
EPLAN Software & Service GmbH & Co. KG

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User Interface

Look & Feel

The system provides an intuitive user interface. Windows-compatible operation functionalities such as Tooltips, toolbars, drag & drop and Online Help allow beginners and occasional users to get to grips quickly.

Users can easily adapt the entire interface including window arrangement and toolbars 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. Users can then focus optimally on their actual work – engineering – as the user interface customized to their task allows efficient and rapid designing.

In addition, users can customize their own keyboard shortcuts. User-defined keyboard shortcuts are also displayed in the menu bar. Experienced users achieve high input speeds using continuous keyboard control.

Furthermore, configurable properties are available in addition to the default input boxes for properties, to which users can assign own names and predefined values. This allows terms and default values that are established in a company to also be used in EPLAN Electric P8. Rapid familiarization and the implementation of company-specific standards are thus easily possible.

**Workflow & Integration**

The system can be configured by means of settings to meet the needs of the user, company, 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 backing up data, archiving, and sending projects via e-mail ensure the necessary security and transparency of work results. A compression function removes the non-essential data from a project, if desired, to reduce the storage medium load, to simplify data maintenance and, if necessary, to protect your company know-how when projects are passed on.

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.

The possibility of using existing data beyond engineering and the online provision of documents are the basis for simple service and maintenance processes. Interfaces facilitate interdisciplinary cooperation.

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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. An active automatic exchange of information simplifies integration into PDM and ERP systems. And this comprehensive approach doesn't just help project engineers to achieve the correct result faster – other departments such as Materials Management, Production, Controlling, and Sales also benefit from transparent IT processes.

Method

The CAE program should reproduce the engineer's approach – this ensures maximum effectiveness. This should be differentiated as follows:

- Graphical combination of symbols and graphical sub-schematics
- Function-oriented view (module principle)
- Start of planning with bills of materials (lists of materials).

During the project phases, the work method changes frequently or is combined. Any editing sequence – plan functions / draw schematic / edit BOMs – 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. This releases new potential productivity in engineering and also increases transparency.

Graphical Sub-schematics

You can create and use own graphical symbols and partial circuits (macros). Automatic naming of devices during insertion reduces manual inputs – and therefore input errors as well. Configurable checks immediately draw your attention to potential errors where necessary. Users can interconnect symbols or partial circuits rapidly and efficiently through autoconnecting.

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**Function-oriented View**

Higher-level object orientation permits the synchronous editing of devices distributed throughout the schematic (contactor coil / contacts) with a single action. Special overviews for items such as PLCs, buses, plugs, terminals, cables, wires, etc. simplify function-oriented processing – independent of schematic pages.

Put briefly: Fast results with excellent project overview and no inconsistencies.

**Starting Planning with Bills of Materials**

Preliminary bills of materials (e.g. from Excel) can be integrated into the program and quantities incorporated into the schematic can be checked immediately. You can pre-order service items or equip the mounting panel while the schematic is still being drawn.

This allows project phases to run in parallel, saving you a huge amount of time. You can also gain decisive advantages in productivity by coordinating planning and production.

**Redlining**

"Redlining" describes a workflow for revising project documentations. In the process a project creator or editor sends a schematic to a project redliner. The redliner comments, changes or supplements the schematic and returns it to the project creator. The creator, in turn revises the schematic on the basis of the comments and includes the changes into the original documentation. Through Redlining EPLAN Electric P8 supports this workflow and thus simplifies the maintenance of the "as-built" documentation.

Schematics can be output as PDF files and then released for commenting in Adobe Acrobat Professional or Adobe Acrobat Standard. Selected comments can then be stored in the PDF document using the Adobe Reader or Adobe Acrobat Standard. These comments can then be read back into the original EPLAN project. The result is a workflow in which the actual "redlining" is carried out in digital form outside EPLAN Electric P8, the information is recorded consistently – allowing the documentation to be kept in the "as-built" state simply.

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The comments navigator can be used to change to or select the comments of a project. This dialog shows you tree and list views of all PDF comments in the currently open EPLAN project. You can use the popup menu to jump to the associated PDF comments on the EPLAN page.

The project editor is optimally supported in adding and maintaining the comments. Paperwork and faxes are no longer necessary and the comments are easy to find and clearly legible. This significantly accelerates the feedback of information and produces higher-quality results.
Projects

Schematics and corresponding documents such as lists and overviews are created as pages within 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.

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

These action options are intuitive and can be used immediately. They simplify the re-use of previously used solutions – and that saves time.

Project Templates

From the very beginning of a project EPLAN supports the user through the selection of a project template when norm-compliant documentation is created. Project templates can already contain standardized schematics, pre-defined settings and preset reports – thus simplifying and accelerating the project planning process notably.

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 e.g. be adapted as needed to current standards.
Project Structure

The pages and devices in the project can be divided into areas such as plants, mounting locations or products. Reports can also be included automatically in this subdivision. The following identifier blocks are available for defining the project structure (norm IEC 81346):

- = = Functional assignment
- = Higher-level function
- ++ Installation site
- + Mounting location
- - Product
- & Document type (IEC 61355)

Higher-level function number
User-defined identifier block

These identifier blocks can also be used to define the device structure in accordance with the norm IEC 81346. The various structuring criteria from the standard (functional, location and product aspect) are mapped in the EPLAN Platform by means of the higher-level function (functional aspect; preceding sign "="), the mounting location (location aspect; preceding sign "+"), and the product aspect (product aspect; preceding sign "-"). The position of the "Document type" identifier block and the usage of object identifiers (IEC 61355) can be defined project-specifically. In your own project structure, you can specify user-defined prefixes for higher-level function numbers and user-defined identifier blocks.

The schematics can also be created in accordance with different standards, such as the NFPA standard (USA), the GOST standard (Eastern Europe), the GB standard (China) or the JIS standard (Japan). The system helps users to manage the structure identifiers with descriptive texts, sorting functions, and a usage test. Structure identifiers no longer used can be removed automatically. The order within the structure identifiers for page sorting and reports is user-definable.

The norm-compliant structuring of projects can therefore be managed transparently, flexibly, and easily.
Multi-user

Multiple users can edit one project simultaneously in multi-user operation. You can see which users are currently working on a project in the "EPLAN Multi-User Management" module. This allows users to define defined working sections at 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.

Pages

The program can use any page format to display the actual page sizes. A scale can be assigned to the page to insert mechanical dimensions. This enables schematics to be planned and printed on a wide range of page formats.

The page name can be combined optionally with characters or sub-identifiers. This is used to comply with various standards and work regulations.

Documents in different formats such as Word or PDF can be integrated as project pages. The complete documentation therefore also includes information that was created using different software applications.

The system therefore provides central access and avoids the need for time-consuming searches to find and compile documents.

Page Navigator

The pages of a project can be displayed in the page navigator in either a list or tree structure. With the aid of a graphical preview, the important page-based processing steps can be performed here – e.g. creating, opening, copying, deleting, exporting, importing, and numbering pages, editing page header data, etc.

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This frequently used intuitive tool helps you to perform tasks on pages quickly and securely.

The page navigator and the graphical editor also include the menu item "Create page macro". This can be used to store the current page – and subsequent pages if necessary – very easily as the default solution for an automation-specific task.

The ease of use of these functionalities simplifies the re-use of partial solutions in this way, which reduces project planning costs.

Filters can be used to display only those pages that meet specific criteria – e.g. certain structure identifiers or the results of the last search run using the search function. Pages pending revision can be automatically identified from a large selection and made directly available using this function.

**Print and Print Preview**

The print preview displays project pages exactly as they are printed. You can choose between color or black and white.

Independent of the paper format, pages are scaled to the page output format of the printer. However, it is also possible to deactivate scaling – this is particularly important for free graphics, which are often printed to scale.

This technique can be used to structure and control paper outputs optimally for further uses.

**Graphical Editor**

A graphical editor allows you to edit the elements on project pages. It can be used to create e.g. diagrams, graphics, mounting panels, macros, symbols, forms, and plot frames.

This gives the areas a uniform, transparent look and feel – and eases familiarization.

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Hyperlinks to a document on the network or Internet can be inserted anywhere as text. You can use this functionality to dynamically store further information in the schematic itself, so you can store notes on planning and maintenance exactly where they are needed.

The zoom and pan functions can be operated using the mouse wheel. The visible section can be moved and the schematic enlarged or reduced on screen. When moving the cursor and holding the middle mouse button down, the page contents are moved in the direction of movement. "Scroll behavior" can be set to that of either word processing or CAD programs.

Adapting the mouse functions to the working habits of the user ensures secure intuitive use of the editor within a very short time.

Logical and graphical elements can be grouped and edited jointly using editing functions. The elements can be moved to the foreground or background. By grouping them like this, numerous individual editing steps can be performed in one single action.

**Direct Editing**

In the graphical editor, it is possible to edit the displayed texts directly without an intermediate dialog. This allows effective and rapid manual revisioning of the schematics with just a few operating steps. The data displayed and used in the schematic can also be edited by untrained users very easily and securely.

**Global Editing**

Output data can be directly edited on automatically generated report pages. This change acts object-oriented on the entire schematic.

The "Properties (global)" editing option is now available on the report pages and makes it possible to edit the data right from a report page. The appropriate object-specific dialog is opened, so for the "Function" source object, for instance, the properties dialog is opened, while for a structure identifier the structure identifier management is opened.

The "Direct editing" mode is also available on report pages. As soon as you confirm a change, the objects are also updated on the other project pages.

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There is also the option to modify only the text on the report without affecting the schematic (manual correction). You can thus edit any item on the report page without switching to the schematic page or dialog.

In the reports, the user has an optimal overview over the project data (e.g. an entire terminal strip or bill of materials). He / she can directly carry out the modifications here. Searching for the devices in the schematic can be dispensed with. EPLAN Electric P8 automatically synchronizes the modifications on the reports with the schematic so that the project data are correct and up-to-date. Especially when revising projects during the implementation phase or when revising a machine / plant, EPLAN Electric P8 thus optimally supports a simple and effective workflow with this "reverse engineering" so that the project documentation is always up-to-date.

**Working with Texts**

Different technical properties can be displayed as texts beside the elements in the schematic. The installed Windows fonts can be used for this. The texts can be scaled and rotated by any angle.

Individual properties can be docked dynamically to other properties. If a new line is inserted in the main property or the main property is moved, the positions of the docked properties also change.

When revising schematics, the layout of texts on the project pages automatically adjusts to the text lengths. Docked texts accommodate each other and don't overwrite each other. Texts are automatically positioned correctly after each change.

If there is no proprietary function text beside the component, the function text from the path is evaluated in reports as if it were displayed beside the component.

A path function text simplifies the documentation, as you don't have to enter a proprietary function text for each component.
An alignment box can be assigned to texts. This enables the text to adapt automatically to the width of the frame – and therefore the available space. The advantage of this is that if texts are e.g. automatically revised due to translation into foreign languages, you don't need to check the entire schematic to determine whether a text overlaps another text or graphic.

In many cases, it's necessary to display data from other objects beside an object in the schematic. To display the relevant information, the system uses indirect properties.

Data input at one place is then also visible at other places. This eliminates the costs of redundant data maintenance.

**Editing a Graphic**

The graphical editor provides constructive support with snap points (e.g. end points, center of circle, intersection) for graphical interactions. Graphical elements can be stretched, scaled, and rotated. It is possible to insert various image formats on the pages.

A construction mode helps you to align graphical elements to specific points or place them at specific coordinates. This provides a modern, convenient, and user-friendly way to create and edit graphics.

**Dimensioning**

For dimensioning, there are functionalities for simple dimensions, continued dimensions, incremental dimensions, baseline dimensioning, angular dimensions, radius, and diameter. The dimensioning functions can be used to create norm-compliant mechanical designs and customer-specific drawings.

The representation of dimensions with regard to dimension lines, dimension line limiting, and formatting or moving the dimension value is user-definable. For non-scaled representations, the dimension value can also be edited manually. You can leave out dimension line limits to save space. Two units can also be displayed for international projects in order to improve the comprehensibility.

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These functions establish the prerequisite allowing you to e.g. forego a separate solution for enclosures, mounting panels, and other mechanical representations: These components can also be displayed easily using this system.

Symbols

The schematics can be created by combining individual symbols similar to the blocks used in CAD systems. You select the existing symbols from a list or a tree structure using a graphical preview. On insertion, the symbol can be rotated / flipped into one of the eight available variants.

Creating the schematic with symbols ensures that the elements are always displayed the same way and as required. The schematics are easier to read due to appropriately preconfigured standardization of the graphics, and the position and format of the texts. EPLAN provides the symbol libraries that permit norm-compliant project planning as a part of the master data.

Symbol Editor

You can easily create new symbols yourself. A wizard is available for creating rotated symbol variants.

The graphics and insertion point are rotated as necessary, and the connections are adapted automatically to the rotation. Logic can be assigned to the symbol in the form of a function definition.

The graphical layout and naming of symbols is user-definable and independent of the logic. Using the symbol editor, symbols for different (work) standards can be efficiently revised and created.
Autoconnecting

Connections of components that are horizontally or vertically opposite each other are linked automatically. When inserting and moving symbols or parts of schematics, the system displays a preview of the connections.

Using the Smart connect function, the connections are retained when moving elements. In graphical revisions, the connection of items is therefore retained.

An interruption point allows you to transpose a connection or a potential to another project page the documentation, with the interruption point name being user-definable.

Crossing connections can be used to display exchanges in the connection sequence between elements transparently.

Autoconnecting considerably simplifies the insertion of elements as you find the right position straight away, and the connections are drawn and followed by the system automatically.

Automatic Cross-reference

The cross-reference displayed in the schematic allows you to display distributed devices and locate the corresponding components from a multitude of project pages securely. The program offers automatic generation of the following cross-references for this purpose:

- Symbol cross-reference
- Cross-reference to device tag list
- Interruption point cross-reference
- Cross-references to the device overview page
- Mounting panel cross-reference.

The cross-reference provides different options for configuration and norm-compliant formatting. For example, it can be included at interruption points arranged by row or column as a star or chain reference. It can also be displayed in brackets in accordance with the GOST standard often used in Eastern Europe.

The described functionalities are only available for certain module packages. See the Licensing Overview chapter.
Automatic generation and formatting of cross-references spares you a lot of typing and ensures the correct referencing of the items distributed in the schematic.

**Automatic Contact Image**

The system automatically generates the contact image display with cross-references in the schematic and the display of the free elements. Newly drawn elements in the schematic appear in the contact image either on their own as a symbol or in a table cross. Forms in tabular form can also be used in order to allow special forms of representation of the contact image – as is common in the Asian markets.

The representation of connection point designations, cross-references, and part numbers can be configured extensively. The contact image appears at a configurable default position and can be moved anywhere for each element.

The automatic display of the contact image gives you an overview of the distributed elements at any time. This makes project planning of distributed devices much easier and more convenient.

**Layer Management**

Different layers can be used in the drawing. Transparent management permits the creation and labeling of user-defined layers that operate as in CAD systems and control font sizes, colors, line thicknesses, line types, etc.

The layers simplify uniform representation of the elements in the schematic. Changes to these standards can be made easily and are immediately effective with a single operating step.
Macros

Macros allow sections of a schematic to be used repeatedly. The partial schematics are saved under a specific name so they can be easily re-used later. Separate macro projects are available for creating and managing macros. You can create up to sixteen variants and eleven representation types of a macro under the same file name to vary the circuit or rotate the representation.

When inserting the macro, the user-defined descriptive text is displayed in a comments field under the graphical preview.

Using a macro box inserted with the macro, you can update an inserted macro or exchange it for another in the schematic. The position of the macros is also stored so that the original position can be jumped to when the macros are used again.

The advantage of storing parts of the schematic as a macro is that work already performed can be easily re-utilized for similar tasks. Structured generation and storage produces a knowledge database that can save you a lot of time in similar projects.

Variant Technology

Machines increasingly contain construction variants that are used to implement individual customer requirements and different machine configurations. Optional plug connections for rapid and mounting-friendly exchange of machine components or variable motor control systems for flexible use of a drive are examples that also have an effect through different representations in the documentation.

To simplify the planning of these machine variants the user can store records as variants at the EPLAN macros (i.e. as value tables for technical data and parts information). This eliminates the need for manual editing of macros after inserting them. Placeholders can be defined for the data in a macro. The selection of a variant during the design phase provides the values and the appropriate circuit for the current requirement in the program. The selected values can also be switched over simply and rapidly later on in the finished schematic.

The described functionalities are only available for certain module packages. See the Licensing Overview chapter.
In this way, the available engineering expertise of all employees is stored in a knowledge database. Schematic planning becomes more effective with fewer steps and more valuable qualitatively by setting all default values; also, there are fewer macros to maintain and manage.

**Items / Devices**

When you insert a symbol into the schematic, this graphic includes an electrical function. Graphics and logic are managed separately so that real functions can be represented in any way. This can be used to comply with graphically different standards and work regulations.

Devices can be numbered simply and automatically during inserting, either individually or through multiple selection. Identifiers can be assigned norm-compliant or, if required, be defined individually.

Central navigators with special functionalities are available for devices such as terminals, plugs, PLC, cables, connections, potentials, and interruption points. These provide you with clear editing options that are independent of the representation on different project pages. This simplifies the creation and editing of devices considerably.

Complex or unknown devices don't have to be described in detail in the program before you can work with them. The black box functionality provides you with a technique that quickly gives concrete results for variable detailing.

The items are automatically managed in device lists and bills of materials. Pre-planned devices can be imported and used. The system checks online which components are already integrated into the schematic.

The link to the external pre-plan enables it to re-use data and identify deviations between the pre-plan and the design. This makes the engineering process more transparent and effective.
Terminals

In the "Terminals" area, the program includes comprehensive functionalities for terminal strips and terminals. These can be used to manage multi-level terminals and multiple terminals with the same name (e.g. PE).

Terminals can be numbered using numbering schemes and arranged using sort options for positioning the terminals on the terminal strip. Different bridge types and multiple parts can be assigned to the terminals. Terminal strips can also be imported and exported.

In addition, you can create and manage terminal strips like devices and check them using pre-definitions. It's important to note here that the terminal designations don't necessarily have to be indicated.

By ensuring a clear representation and automating editing steps, these functionalities for editing terminals help you to perform recurring tasks quickly and effectively.

Plugs

Plugs can be considered either as an entire component or the individual parts "male pin" and "female pin". Even if the male and female pin are displayed separately in the schematic, the system can manage the correspondence, which permits both connection tracking and comprehensive reports.

These options allow the higher-level function to be clearly divided on project pages. Plug-in add-ons form simple proprietary project pages that you can copy into the project as necessary. Pins can be numbered using numbering schemes and arranged using sort options for positioning the pins on the plug report.

This greatly supports and simplifies the modular structuring of higher-level functions with plug connections.

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

The system contains a connection navigator that can be used across pages. Various types of connection can be displayed and differentiated – e.g., hydraulics, pneumatics, electrical, process engineering, cable, tube, pipe, wire, wire jumper, saddle jumper, phase busbar, busbar, etc.

There are also direct connections in which two connection points are directly connected to each other. However, the schematic contains one connection line. An example of this is the fuse that is placed directly on the busbar. This connection is not numbered, but it is a connection used for target tracking.

You can enter project-wide, potential-wide, signal-wide or network-wide defaults for the properties of connections. Using connection definition points, information can be assigned to each individual connection, e.g. cross-section, color, conductor / connection number, type designation, intrinsic safety, etc. These connection data can be reported and output in forms.

The connections are displayed in the schematic according to configured line data. You can configure the line data for the project, potentials, signals, or individual connections.

By graphically highlighting specific connection types in the schematic, you can professionally display how specific potentials or e.g. intrinsically safe connections run. This makes the planning of connections transparent and secure.

Connection Numbering

Connection numbering allows you to automatically or manually assign connection designations. Manually preallocated and automatically assigned connection designations can be used together in a project. You can exclude individual connections from the numbering and freely position the connection designation on the connection (subsequently).

Connection designation formatting is flexible. The designation is not only limited to numbers, but may also contain letters and certain special characters. Certain groups of connections within the function definitions selected for numbering can be formatted differently. For example, designations for connections attached to a PLC differ from those for connections attached to a plug.

The described functionalities are only available for certain module packages. See the Licensing Overview chapter.
In addition to being displayed in the schematic, connection designations can also be output as lists and in forms. These output options can be used in label printing machines or for tags as well as for connection lists used in assembly operations.

Automatic connection numbering decreases the amount of manual work for the user, especially when starting new projects and revisions. Furthermore it is ensured that the designations comply with the desired systematics.

**Cables**

Cables can be edited in the navigator for cables or in the graphical editor. In addition to conductors, a cable can also contain optical fibers or tubes (hybrid cable). A cross-reference can be assigned to the cables that simplifies the localization of distributed representations in the schematic.

An automatic run generates and / or completes the cables in the project. There are special formatting options for the system-supported numbering of cables. Multiple shields can also be managed for shielded cables. The cable lengths used in the project can be automatically totaled per cable type to determine the number of cable drums required.

Spare conductors can automatically be specified for cables starting at a certain minimum number of conductors. The work standards of different companies that prescribe a specific number of spare conductors in cabling are fulfilled in this way.

The cross-page editing options, in conjunction with the automatic functions "Generate cables", "Number cables", and "Add up cable lengths", reduce the planning requirements for cables considerably.

Cable lengths can also be determined automatically with the "FieldSys" module.

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

The potentials and signals defined in the project can be displayed in either a tree or list structure in a navigator.

You can specify on a connection point whether it is a source for a physical potential. The limits of the physical potential are defined by the source and the consumer. The following settings can be set for potentials:

- Name of potential
- Signal name
- Potential type
- Potential value
- Frequency
- Possible counter potentials.

Potentials or signals can be temporarily highlighted in color to allow a quick overview of their extent. Signals and energy flows can be clearly visualized and securely planned beyond page borders.

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

Navigators

The different navigators offer page-independent views of the project data. For example, in the device navigator the functions are displayed, whereas in the cable navigator only cables and shields are displayed, and in the terminal strip navigator only terminal strips and terminals are displayed. These dialogs are dockable and can remain open while the project is being edited if you wish.

The data from several projects can be displayed and edited at the same time in the navigators. Filters can be configured so that only the required data volume is displayed.

In the graphical editor, you can jump to every placed component that is selected in the navigator. To do this, the corresponding project page is opened and the component selected. Vice versa a component marked in the schematic can also be synchronized with the navigators in order to find functions belonging together faster.

The navigators can be used to find project data easily, and view and edit it independently of the project pages.

Parts Management

Parts management is used to store part-specific and supplier-specific information multilingually so that it can be combined with the project currently being edited. Both manufacturer-specific and company-specific part numbers can be managed. The accessories function can be used to manage required or optional accessories for the parts. The program also processes part variants as identical part numbers with identical sales data, but with partly differing technical data.
The data required for the evaluation of the safety of controls can be stored directly at the parts in the parts management. The user does thus not have to compile the safety-related values manually anymore.

You can combine a collection of parts into an assembly that belongs to a device (e.g. a probe with an NO contact, the appropriate mounting and the button). This assembly then receives its own part number and can contain subassemblies.

You can also form modules that additionally contain lists of subparts (module items) structured by device tag (DT). A module is thus a set of parts that belong to several nested devices (for example, a motor control unit installed in a 19" rack). It can also contain assemblies.

Using this functionality allows you to plan more quickly as you are working with complete finished modules instead of individual functions.

This type of parts management is a quick and efficient solution for recording and managing sales and technical data required for construction plans.

Within the tree and list display, there is a popup menu available which provides different actions – e.g. the creation of a part or a variant, copying of parts, copying of technical information from a part.

The parts and their technical data can also be generated from the graphic. In this way, you can immediately identify which technical functions the part from the schematic contains.

Parts can be structured to suit the individual perspective of the customer. Standardized structures such as VDMA, eCl@ss and ETIM are also possible. The representation in the EPLAN Platform optimally adapts to the existing structure and way of thinking. This allows items to be maintained and gradually selected in a tree view, based on customer-specific criteria. The entire parts area is intuitive, fast, and easy to manage.

In the display, there is the option of reducing the amount of parts data displayed using a filter; either field-oriented or full text filters can be used. Data collections from specific manufacturers can be imported or exported. Technical data on a part can be copied to other parts of the same type. Where necessary, the system can also convert prices automatically into another currency.

The described functionalities are only available for certain module packages. See the Licensing Overview chapter.
If you use foreign-language designations, you can create and edit the parts master data in different languages. You can automate translation using the "Translation" functionality.

These functionalities simplify the maintenance of parts data considerably and facilitate the use of existing data in international settings.

The parts data are stored in an MS Access database or on an SQL-Server. SQL database support can significantly increase the performance of the parts management (and also the part selection) at large quantities of data.

If you already use a program to manage parts that has a suitable interface, the system can link up with this. In the interface, the fields of the external data source are assigned to the EPLAN Electric P8 fields. This assignment is configurable. The system then accesses the external database for these fields instead of it own.

The program fully integrates into existing ERP solutions in this way; data is stored and maintained centrally.

**Device Selection**

When selecting defined devices, the system offers parts matching the functionalities drawn in the schematic. This can occur after the design process in the schematic, or as a preselection, after which the design is used in the schematic in a second step.

You assign a defined device to a device; the assigned defined device may contain one or more parts. Defined devices are selected using technical features and parts are automatically offered which have an "appropriate" or a "larger" set of functions than are needed.

The selection of defined devices can be performed either for the entire project or a selection of devices. If you wish, only those devices can be taken into account that either have no defined devices assigned to them or for which there is an error (e.g., over-assignment).
Device selection automates time-consuming manual searching through catalogs, supports you in planning by offering the use of existing reserve items, and facilitates automatic checking of schematics for over- or under-assignment of items.

**Logic Checks**

While editing a project, there may be (intentional or unintentional) inconsistencies or electrical and logical errors. This sort of project error can result in incorrect or incomplete reports.

EPLAN Electric P8 offers you the option of performing logic checks on the schematic pages, which support you when creating correct schematics and reports.

Device data is checked, such as incompleteness in definitions (cables, terminals, contactors, devices, PLC, etc.) or multiple (non-cross-referenced) or no longer existing devices. Function-related checks can also be performed, such as incomplete cross-references or interruption points, incorrect potential definitions, etc. The projects can be checked online or offline. The maximum number of possible off-line check run messages is limited to 10,000 messages.

You can determine yourself which criteria should be checked and how the corresponding messages are to be categorized. Messages are divided into three categories based on the seriousness of the underlying errors: Error, Warning, and Note. The messages are marked with icons depending on the message category. This allows you to identify critical messages immediately.

An overview of the inconsistencies discovered in the check runs is displayed in message management. Within the project message display, you can use various filter functions to specify the scope of the planning errors displayed. Each message uses an intelligent jump function to enable you to find the corresponding error location in the project. An extensive description and correction suggestions are available in the online help for the project planning messages.

The message texts of the message management are shown in the graphical editor. If, for example, there is a faulty entry at a component (for example entry of an already assigned device designation) or a false action, an information text is displayed immediately in the graphical editor.

The described functionalities are only available for certain module packages. See the Licensing Overview chapter.
At an activated functionality and corresponding type of check ("online / offline") planning errors are visible online when they arise in the schematic and can be corrected or avoided immediately. The restrictive type of check "Prevent errors" ensures a high level of quality in your project documentation by directly reporting an incorrect entry and subsequently undoing it.

These checks support the user in the schematic creation. The accuracy of the documentation can be checked automatically to identify errors at the planning stage and reduce commissioning times.
Bulk Data Processing

Automatic DT Numbering

When inserting or copying new devices into the schematic, you can specify whether their original designations are retained or automatically numbered immediately. A DT is determined and assigned online for every device that you insert. The counter for the DT is incremented by one in the process. However, you can also number devices afterwards in the page navigator, the device navigator, or the graphical editor.

You can use a numbering format to specify which format elements (page, identifier, path, line, counter, etc.) are used in which order. You can check and modify the numbering in a preview before writing it to the project.

A numbering scheme establishes e.g. whether the terminals / pins in terminal or pin designation labeling are to be alphanumerically or purely numerically numbered.

For devices connected to a PLC, you can accept parts of the PLC address or the designation of the PLC connection point into the device tag (or the terminal or pin designation). Such an identifier is used for projects, for instance, which comply with the NFPA standard (USA).

An identifier check function is available for checking the validity of the manually input characters for the DT.

The automatic numbering functions spare you a lot of typing and also prevent different devices accidentally being given the same designation.
Automatic Connection Numbering

Connection numbering allows you to assign designations for the connections manually or automatically. You can exclude individual connections from the numbering and freely position the connection designation on the connection (retroactively). Connection designation formatting is flexible.

The designation is not only limited to numbers, but may also contain letters and certain special characters. Connected function properties (device properties) as well as signal and potential properties can be used in the formatting. In addition, a counter and a subcounter can be specified.

Settings for connection numbering are saved in schemes. In this way, you can access previously specified settings and also change them if necessary.

Certain groups within the connections selected for numbering can be formatted differently. For example, designations for connections attached to a PLC can differ from those for connections attached to a plug.

In addition to being displayed in the schematic, connection designations can also be output as lists and in forms. These output options can be used in label printing machine or for tags as well as for connection lists used in assembly operations.

Connection numbering permits convenient settings for automatically designating all connections in the project correctly in a numbering run.

Block Editing

Block editing is used similarly for the various objects. First, you select the objects to be edited, then open the Properties dialog. If the same data is entered in the input field on the elements, you see this value. Otherwise, a placeholder appears, which can be edited.

You can change or synchronize the shared properties of the selected objects in this way. For instance, the function text, the engraving data, or technical characteristics can be edited together. Elements found using the search function can also be edited in blocks. This simplifies the selection of elements to be revised.
Reworking the schematic requires far fewer operating steps as you don't need to search and jump to the elements in the schematic, and the new values are only entered once.

**Editing in a Table**

Using table editing, different objects on different project pages can be edited together in a single dialog.

The DT of the selected devices are shown in the convenient form of a table and can be edited in blocks, e.g. renamed or numbered. Device tags can be subdivided into columns whose numbers and names you can specify yourself. The data from the objects is copied and pasted to other programs, edited there and then pasted back.

In this way, data from identical objects distributed on different project pages can be displayed in a structured format and edited transparently.

**Editing Data Externally**

For direct connection to other programs (such as Excel), you can create templates that can be used to edit the data in the program. E.g., Excel macros can also be stored in the template.

You can specify the data to be considered during external editing of project pages, functions, or connections. You can export the data to edit it at another workstation. However, you can also start the external application to modify the data and reimport it into the system.

This facilitates simplified batch data processing with the look and feel of other applications. Data can be modified automatically in external programs using scripts and similar functions.

New data, for example pages or functions, can also be generated in the EPLAN Platform through external editing of the data. The newly generated functions can then by dragged-and-dropped easily into the schematic from the navigators.

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

The search for objects can be defined for the entire project, or just for specific project pages. In addition, you can specify the project in which to look for a search term.

All character strings are allowed in searches, which may also contain place-holders (such as "*" and "?"). It is also possible to search for multiple related terms.

The results of a search are entered in a list of results. You can enter the additional search results in the list of results and replace existing entries. You can also change to the objects on the project pages.

By using the Replace function you can automatically replace terms contained in the list of results by new or changed terms.

You can right-click to open the editing dialog for the relevant objects for the selected entries in a list of results, and to make changes to these objects. This can also be performed for blocks of selected objects and texts.

Revising recurrent data is a common editing task that can be performed very effectively and quickly using the search function.

Automated Processing (Script)

A script is created to process a project automatically. The project actions to be automatically executed are defined in the script.

The user interface can be used to create a simple script with a few clicks of the mouse. Experienced users can rework and extend the script using an editor.

The script can be called by a command line. The program then opens and performs the project actions defined in the script.

Creating scripts is a simple way of automating recurrent tasks. This avoids time-consuming manual repetition of simple recurring work processes.
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.

To exclude certain reports from updates, the "Reports - <Project name>" dialog has the option "Freeze report pages" in the popup menu. With this option, project data in placeholder text on frozen report pages is then excluded from the update.

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.

Several short reports can, for example, be output on one page. Free positioning of reports (e.g. bill of materials on mounting panel drawing) can be used to produce clear, compact documentation.

You can obtain error-free reports automatically in a few work steps. Clear information on the wiring of items is achieved in this way. The result is a high-quality, compact production documentation, so printing costs and time are reduced.
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 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. The system performs the laborious manual creation of connection point diagrams from the existing schematic.

- 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 Overview Reports

Overviews

The automatic overviews provide a quick, accurate list of the parts used in the schematic. The quantity structure from project planning can be checked and displayed efficiently.

- Cable overview
- Plug overview
- Terminal-strip overview.
Potential & Signal Overview

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

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 Interfacing

For the visual identification of devices and connections at the installation site, it is necessary to label them. To do this, labels and signs are attached to the devices.

The labeling information to be output on tags and signs can be generated directly from the system. 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.

Direct further processing of available data ensures that the designations are correct and eliminates the need to type the information into a labeling system.

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

Settings

EPLAN Electric P8 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.

Using the project-related settings, you specify the properties in a project such as e.g. the graphical representation of objects. The project-specific settings are subdivided according to electronic functionalities. The project settings can be specified using a common dialog – even if the settings apply to different areas.

You can also configure the work environment user-specifically, adapting the program's functionality to the working method of each user. The program then loads the user-specific settings, regardless of which workstation that person is using.

Workstation-specific settings – e.g. for the file sizes when managing system messages – are also possible.

You can also enter company-specific settings to set identical specifications and company-wide conventions for the workstations used.

The settings dialog allows you to reset the individual settings to a default specified in EPLAN Electric P8.

The settings enable you to adapt the system's appearance and behavior to different working methods and specifications. The program can be optimally integrated into the existing work environment.

Form & Plot Frame Editor

Forms display information or results of report runs in graphical form. You specify the order, layout, etc. in which the information is output.

The described functionalities are only available for certain module packages. See the Licensing Overview chapter.
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 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 macros and symbols can be moved or dragged to another position and you can assign specific properties to them such as line type, text alignment, etc.

For both plot frames and forms there is a template you can use to assign the newly generated object certain default values.

The form editor can be used to adapt plot frames and forms easily to company specifications. The resulting schematics then have the desired appearance. The required contents are, however, generated automatically.

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.

Compression can delete the predefined value sets for placeholder objects from the project and clear the search result list and message management. Spare devices, unused language entries, layers with no project data, structure identifiers (e.g., higher-level function, installation location) with no project data, etc., can be removed. The "Reorganize project" functionality can also be used to optimize the database internally.

By removing unused project data automatedly, the file size of a project is reduced and the administration of data (plot frames, forms, spare items, etc.) simplified.
EPLAN Mounting Panel

In addition to pure schematic creation with the associated schematics and lists, the EPLAN Mounting Panel extension module also allows the design of panel layouts and mounting panels.

Using the jump functions, you can switch between mounting panel and schematic view for an item. When placing items on the mounting panel, the program can take account of locked areas and mounting differences.

For the mounting panel, you can create item legends that can be bound to the project in a number of different ways.

In order to support the various working methods of builders and engineers, it is also possible to create panel layouts without an existing schematic. Part placements on a mounting panel already define a device, even if no corresponding function has been placed in the schematic yet.

For placement by drag & drop, the devices used in the schematic or present in the parts preselection are displayed in a list view or tree view. When placing elements planned in the schematic, the system checks whether the placement is on the correct mounting panel. This immediately indicates which items from the schematic have yet to be placed on the mounting panel.

In this way, the mounting panel is either the leading factor, or it can be quickly equipped from the schematic correctly.

Enclosure Legend

The data of the items in the enclosures can be listed automatically. Alternatively, the legend can be generated as a window legend – i.e. as a freely positionable graphical object – on the same project page as the mounting panel. It is also possible to output the legend as a separate form on its own project page. In this case, no legend is shown in the graphical editor on the panel layout page. However, items will display item numbers but no device tags. This type of legend is described in the system as a page legend.

The described functionalities are only available for certain module packages. See the Licensing Overview chapter.
The automatically generated legend increases the clarity of the mounting panel representation considerably and provides the important structural information required for production.

### EPLAN PLC & Bus Extension

#### PLC Processing

The "PLC & Bus Extension" extension module supports the user in managing PLC controllers and bus systems. The PLC information in a project can be displayed and edited in a dialog. The address does not have to uniquely identify a connection point and can be left empty initially during project planning.

Several bus systems and PLC controllers can be managed in a project. In the process several bus systems can be connected to a PLC or a bus system can contain several PLC control systems.

PLC connections can be re-addressed automatically and displayed on overview pages. Settings for different PLC types can be saved in schemes and switched centrally. The symbolic address, the channel designation, and the function text are managed. You can import assignment lists, edit them and synchronize them with the schematic. Meaning that tedious manual synchronization is no longer required – and an optimal cross-discipline engineering process is ensured. The wiring of PLC assemblies can be overviewed at every project stage and edited with system support.

#### Bus Topology

You can map your bus / network topology with symbols on a single-line schematic page graphically. The system then manages the bus addresses with the dependencies of the slave and master configuration. Different communications protocols can be defined directly at the plug, making recording of the bus data much simpler and better structured.
PLC Data Exchange

The following exchange formats are available for bus data:

- ABB Automation Builder 1.1
- B&R Automation Studio 4.0
- Beckhoff TwinCAT Version 2.10 / 2.11
- 3S Codesys
- Mitsubishi GX Works2
- Rockwell RSLogix professional Version 20 / 21
- Schneider Unity Pro Version 7.0 / 8.0
- Siemens SIMATIC STEP 7 Version 5.4 / 5.5
- PLC standard exchange format

You can plan the assignment of module to rack slot in the same way as the bus cable and type of station of the node – e.g. as a serial number or model number. The PLC navigator shows which racks and modules are used to form the bus structure in the hardware.

Automatically Generating Schematics from PLC Data

PLC functions can be imported from a bus configuration file or created in the PLC navigator. Assignment lists and hardware configurations from the PLC tools of the manufacturer are used as data sources. EPLAN Electric P8 allows automatic placement of PLC functions and thus allows the generation of PLC schematics including overview pages at the click of a button.

This allows bus configurations to be created using special bus configuration programs, which can then be imported into EPLAN Electric P8 and used to generate a schematic automatically. Schematics, PLC overviews, and hardware structures are automatically generated as target data.

This functionality relieves the electrical engineer from manual drawing tasks. Planning of the PLC and bus components is realized faster with higher quality.

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

- PLC diagram
  PLC connection points of the PLC card. A diagram for each PLC card.

- PLC card overview
  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

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

This simplifies the creation of higher-level function overviews considerably. You can create a cabling plan ("araignée de câblage") using the same technique. This form of documentation is widely used in France. 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. 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. The system provides an automatic conversion function between multi-line and single-line project planning.

The described functionalities are only available for certain module packages. See the Licensing Overview chapter.
In comparison to a purely multi-line representation, the readability of the documentation is simplified greatly and the designer receives a rapid complete overview of the higher-level function. By avoiding recurring details, fewer schematic pages are needed. The work required for documentation is also reduced in this way.

It is also possible to group individual connections into a single-line representation using a bundle. You can create a bundle to suit your needs using symbols. The individual parts are linked by a specially colored autoconnection. The grouped connections can also be extended to other project pages via interruption points.

The information density of the project pages is increased by grouping the connections in the schematic. The schematics are more legible, more compact, and efficiently plannable.

### EPLAN Revision Management

Via the "EPLAN Revision Management" extension module, subsequent modifications of existing plants can be captured and documented automatically on the basis of a revision control. You can also access older versions of the project and mark the modified project pages with an approval stamp.

Revision markers can be generated in two ways:

If you have created a revision and continued working in this, changes are highlighted automatically (change tracking). When changes are made to a project page in a revision, the system identifies the changes as a draft. This is displayed graphically by a watermark on the project page. This mark is retained until the project page is closed. If you position the cursor over a modified object in a revision, a Tooltip is displayed containing information about the revision.

Alternatively you can "freeze" a specific project state and compare it with another project state later. In this way, you can e.g. quickly identify which project pages have changed in order to start a new print order. You can specify in detail which properties should be compared. The settings are stored in a scheme. You can therefore create different schemes for different purposes and re-use settings once they have been specified.

The described functionalities are only available for certain module packages. See the Licensing Overview chapter.
If you have changed an object in a revision, then this is 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 report as separate report pages.

Revision management fulfills the requirements regarding traceability of changes. Changes can be automatically identified, listed, graphically highlighted, and commented by the user. This makes working with revisions transparent and efficient.

**EPLAN Multi Language Translation**

Increasing globalization makes the ability to work confidently with foreign languages and output mono- or multilingual schematics essential. The "EPLAN Multi Language Translation" extension module provides this option, while allowing you to keep using your native language.

The program can represent Unicode characters. The texts are translated online automatically. The support of professional translation agencies can be integrated through data exchange via XML or in Office format.

The "AutoComplete" functionality minimizes typing work just as in your Internet browser. The documentation is easier to understand using standard terms, and typing errors are avoided. Existing electrical engineering expertise can therefore be used around the world – with minimal time expenditure.
EPLAN Operational Sequence

The "EPLAN Operational Sequence" assists you in creating operational sequence sheets with new forms, symbols, etc.

Operational sequence sheets are simple graphic representations that provide a structured overview and description of the process of a plant, a machine or a device. 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 (GRAphic Fonctionnel de Commande Etapes/Transitions) has been used.

The operational sequence sheets in the EPLAN Platform make the engineering process even more transparent. You will in future need only one program to create your schematics, fluid pages, functional diagrams and GRAFCET diagrams.

By integrating the operational sequence sheets in the machine / plant documentation, the project members can easily access the current description of the functional sequence. The required coordination is minimized.

EPLAN Net Based Wiring

With this extension module you plan the wiring of the components in a plant from the functional view in tabular form. With the so-called point wiring you solely represent in the schematic which items / connection points have been connected. The order of the connections can 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.

The described functionalities are only available for certain module packages. See the Licensing Overview chapter.
The wiring sequence is specified by the installer when installing the enclosure or plant faster and easier because the installer can recognize the optimum wiring of the components better due to the spatial arrangement in the workshop. Unfavorable line routes through specifications (target wiring) in the schematic are avoided.

One and the same schematic is then valid for various wiring variants thanks to the "Net Based Wiring" and does not have to be changed. The wiring list is nevertheless correct after the return of the information from the workshop.

In combination with EPLAN Pro Panel Professional and the Process Wiring module, net-based connections can be routed optimally and written back to the schematic automatically.

The resulting wiring lists can be used to control machines for wire fabrication, thus notably accelerating the manufacturing process for a machine / plant.

### EPLAN FieldSys

With the "EPLAN FieldSys" extension module you can plan the routing tracks for connections (cables) as true-to-scale representations. This allows machines, plants, etc. to be created in EPLAN 2D overviews with routing plans in building floor plans. Floor plans can be imported very simply and true-to-scale as DXF / DWG files.

The planning of the routing tracks is effected logically coherent and consistently in an integral project documentation. EPLAN automatically searches for the shortest route for you and determines the connection lengths. If necessary, supplementary routing rules can be defined in order to control the routing process specifically.

EPLAN FieldSys simplifies the planning of the machine / plant cabling. Automatic routing including length determination accelerates the creation of a comprehensive documentation. Extensive reports that are created on the basis of the routing results also support the tasks after the engineering process, such as mounting and maintenance.
EPLAN Project Options

The "EPLAN Project Options" extension module allows you to define areas of a machine or plant as project options and then reveal or hide them within the EPLAN project. This way, configuration characteristics or a different dimensioning of a machine or plant can be easily represented and managed by means of project options. Hidden project options are not evaluated any more so that reports of a project are also automatically adapted to the selected project options. For the management of project options, a new navigator, the "Project options navigator", is available. This can also be activated from the "Project data" menu. If particular customer requirements mean that you do not require part of a machine or plant for which a project option has been defined, then simply deactivate the project option in the navigator. The schematic and the reports are automatically adjusted.

A project option can also be displayed transparently. This means, the sections in the schematic are displayed transparently, but not evaluated. With the transparent display it is easy to recognize that at this project point in the documentation an option has been defined which is, however, currently deactivated.

By simply switching on and off the project options, the order processor can easily create a project in accordance with customer requirements.

A basic project is used to create a new project; then some settings are determined – and the documentation for the actual order is complete. Due to the central management of all project options in the navigator, operation of the software is very easy and intuitive for the user.

As processing preparation, your specialists can define template schematics and project options. The order result is therefore not editor-related any more, but can be reproduced at any time due to standardization and is always top-quality. Processing preparation through templates and project options files off the engineering know-how of the company in the system transparently and independently of persons. Knowledge transfer can be controlled by creating the project options.
Additional information (e.g. in deactivated project options) can be removed from a project prior to delivery. A special report is available for indicating which project options are contained in the project and which ones are selected.

The workflow can be controlled even more specifically in connection with rights management. While the colleagues in the development department create templates and options, the project editors access the prepared components easily, securely, and quickly, instead of re-inventing these from scratch.

Fluid and electrical engineering can be integrated in the combination of project options. Based on the mechanical and fluid-specific planning, the result of individual project options is thus directly controlled within electrical engineering (including structure diagram and I/O assignment of PLCs).

**EPLAN Project Management**

The "EPLAN Project Management" extension module offers the option of cross-drive project management. To find existing projects via project management from other workstations, you can import the header data of the projects into a project management database.

In project management, you can also view project-specific and cross-project information. Extensive functionalities enable ease of use – e.g., when revising, backing up, or filing off multiple projects.

Project properties can be processed in blocks in project management. You can also output a complete overview of the project header data from a project, and display the users currently working on the selected project if you wish.

These properties enable the continual re-use of existing (sub-)projects and avoid the need to plan projects entirely from scratch.

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

The workflow in the system can be administered easily, similar to the Windows rights management.

Using the "EPLAN User Rights Management" extension module, which is displayed in a tree structure, you can block dialogs, menu items, and toolbars in the user interface. The rights can be assigned blockwise to groups. If required, individual editing functions such as "Delete project" can be blocked specifically. 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.

This allows an administrator to configure the access rights and the menu structure. This avoids the user having to deal with menu items that they do not need. This increases the clarity of the program, and therefore improves the operating speed and allows the user to work more effectively.

The division of the processing steps is different in each company and depends on working methods, project, knowledge level of the user, etc. The users obtain their rights by belonging to one (or more) group(s). The permitted editing rights can be assigned to the user groups by the administrator. The groups give their assigned rights to all users in the group.

If the user logged on in Windows is set up as a system user, then the logon occurs automatically and the user does not need to enter his / her user name and password again.

If the rights management is to be used, the module has to be used at all the EPLAN workplaces in the company. This is the only method of ensuring that a user cannot circumvent the rights structure.

With rights management, users can be employed according to their abilities. Planning tasks can be distributed and controlled, and operating errors are avoided. Rights management also supports adherence to standardization rules.

The described functionalities are only available for certain module packages. See the Licensing Overview chapter.
EPLAN Multiuser 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. In this application case the "EPLAN Multiuser Management" extension module reduces the amount of data for the individual user.

Defined Working Sections

You can use this extension module to divide projects structured by identifier blocks into so-called "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.

By dividing a project into individual workspaces, each editor can focus on his or her area of responsibility. This makes extensive projects more transparent, facilitates the orientation, and accelerates project planning in multi-user operation.

Subproject Management

With Subproject Management extensive projects can be divided into smaller sub-projects and edited. These subprojects can then be edited in smaller teams 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 saved to filter schemes. Such a working method also allows trouble-free cooperation with suppliers.

After editing, the subprojects can be integrated back into the overall project in order to generate a complete documentation automatically.
Multi-user Monitor

Further transparency is available to the user in the "Multi-user monitor" dialog. Are there comprehensive reports or checks already running in the current project? It is important to have a quick and simple overview of the current editing steps, particularly when working on projects with multiple users.

If a user has started an action with a corresponding run-time for a project (checks, reports, etc), this is indicated by a progress bar in a tabular overview in the multi-user monitor.

E-mails can be sent between the users for coordination by clicking the respective user code. With a click the information stored in the settings about the current editors of the project (name, phone, computer) is displayed.

The multi-user monitor helps you to see which users are active on which project. You will see at a glance the actions of other users in the project, thus allowing you to coordinate the project work more efficiently.

Structured and efficient configuration shortens project implementation times, and this is perfectly supported by the multi-user monitor.
EPLAN Change of Standard

When working in an international environment, existing schematics are implemented in different standards: IEC / DIN, NFPA / JIC, GOST, ISO, BSI, ANSI, IEEE, JIS etc. The "EPLAN Change of Standard" extension module offers the possibility of adapting an existing project to the specifications of a different standard on the basis of a wizard function.

The necessary changes are displayed to the user in this dialog. Where necessary, you can replace existing plot frames and forms with others, rotate schematics (Europe – USA), replace symbol libraries and individual symbols, and adapt designations and descriptions to the target standard by selecting a suitable template.

The system provides inch and millimeter support. The different page formats are transformed – where necessary including two project pages to one page with a ladder division. The entire documentation can be adapted to another standard in this way quite easily without the need to familiarize yourself with foreign norms.

The existing schematic is therefore easily transformed – in just a few steps and supported by the system – instead of being time-consumingly recreated.
EPLAN Project Reference

This extension module is used to support the cooperation between the client and the supplier. The incoming project from the supplier can be checked 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 with regard to the specifications. The client can thus decide rapidly whether the supplied project is to be accepted or amendment by the supplier is required.

Often, project participants, e.g. the client, will send the project status to another participant, e.g. the supplier as engineering service providers. They edit the project and send an advanced project status back. Using the project verification the client can check the project status before loading it as to whether the project has met the requirements or whether it is of the standard required. For comparisons between a comparison project and an incoming project you can check the following criteria:

- 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?

If the project status does not fulfill the requirements, a message report can be created that documents the differences from the project specifications.

The "EPLAN Project Reference" functionality can be used to set and automatically check specifications regarding quality standards to be observed for the documentation. This simplifies and accelerates the management of projects during a project exchange between different companies.

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

EPLAN Pro Panel is an extension module for EPLAN Electric P8 and EPLAN Fluid that is used for placing electrical engineering and fluid power devices optionally 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" simplifies the construction of complex 3D mounting layouts dramatically.

So-called 2D model views can be used to generate drawings from the equipped mounting panels and enclosures and insert them on project pages. The model views can be supplemented with dimensions and other information and can be used as documentation for the production.

Reports in the form of enclosure legends and bills of material help you with calculating and planning materials requirements.

A functional extension of the "EPLAN Pro Panel" extension module, for example with regard to conductor routing, conductor fabrication, NC machining or other types of manufacturing integration, or the support of automation technologies for production, is not possible.

"EPLAN Pro Panel Professional" is available as a stand-alone version and as an add-on with diverse extension modules and interfaces for such extended editing options.

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

Virtual 3D Enclosure Design

With EPLAN Pro Panel you conceive and design control system enclosures, switch gears and flexible power distribution systems for the energy supply in 3D. The scope of performance of the software includes 3D mounting layout, virtual 3D wiring as well as the design, modification and customizing of copper rails.

Further functionalities apply to the manufacturing integration: All the project reports, drawings and unfolds including the data required for the machine control that are relevant for manufacturing and mounting can be generated directly in EPLAN Pro Panel – both for the machining of enclosure components or copper rails as well as the controlling of automatic machines and the use of service concepts for the cable and wire fabrication, the automatic equipping of terminal strips as well as robot-supported wiring of devices. Innovative bundle technologies are also supported.

Innovative 3D Mounting Layout and Wiring

Free selection of workflow approach and engineering methods – EPLAN Pro Panel is flexible: You determine your working method yourself – whether on the basis of device and connection lists, electrotechnical or fluid-power schematics; whether in 3D mounting layout directly on the mounting panel or in the course of the design of busbar systems and flexible power distributors. All the relevant components can be identified very easily and for example mounted on the mounting panel. Thanks to the innovative eTouch technology you place devices and components in 3D just as precisely and simply as in 2D.

The described functionalities are only available for certain module packages. See the Licensing Overview chapter.
Optimum dimensioning with planning reliability: The virtual 3D model of the enclosure or of the switch gear supports you in dimensioning and in the perfect usage of space. Integrated planning aids such as the collision checks, the online connection display, or the consideration of the manufacturer specifications about installation requirements, minimum distances, material properties and bending radii, allow rapid and optimal positioning and installation. Disturbance recognition and other aspects of consistent quality assurance are moved to the development phase and eliminated at an early stage – including planning reliability.

Virtual wiring

For perfect wiring of the control technology EPLAN Pro Panel uses the 3D mounting layout and for example the schematic. Virtual wiring of the enclosure is carried out on the basis of the combination of the exact position of the item in the mounting layout and the connection information. At the click of a button the system determines the optimum conductor and cable routing tracks as well as all the resulting connection lengths. The result of the virtual wiring can be used, in turn, to optimize the schematic.

EPLAN Pro Panel Copper

Measuring, cutting, bending, fitting and connecting: Copper rails are an important factor in planning energy distributors. The “EPLAN Pro Panel Copper” extension module can be used to plan individual busbar systems and flexible current distributors including the copper rails to be bent and their connections, and to fit them to the installation situation. All the required data for drill holes, punched holes, bending angles or radii are also provided in the form of drawings and machine data for NC-supported manufacturing – the new dimension in design, manufacturing and mounting.

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

This add-on facilitates the norm-compliant planning of hydraulic, pneumatic, lubricant, cooling, and electrical engineering in one central documentation and on a shared platform. Automatic cross-references between the trades simplify navigation and the processing of hybrid construction elements such as e.g. electropneumatic or electrohydraulic assemblies.

With the Fluid functionalities, the system can meet even stricter requirements of effectiveness and uniform engineering in electrical engineering and fluid power.

The scope of delivery includes separate symbol libraries for the trades "Hydraulics", "Pneumatics", "Lubrication", and "Cooling". When using distributor symbols, a predefined name can be automatically assigned for the device tag. This simplifies the identification process notably.

The user can influence the fluid power-related reports specifically through the trades "Hydraulics", "Pneumatics", "Lubrication", and "Cooling". For example, you can use them to output fluid connection lists for hydraulics, pneumatics, lubrication, and cooling components separately.

The system supports the identification code for fluid power items in accordance with the standard DIN-ISO 1219-2. A frame can be assigned to device tags at fluid-power items in accordance with the standard.

Festo Connection

The Festo interface makes it easy for you to import parts data from a Festo product catalog and use them in EPLAN Electric P8. You can easily configure the import settings – the assignment of parts data – yourself and customize them to suit your individual requirements at any time.

"Redirect links" in the parts data provide access to the Festo website, which contains current documentation and the technical data of the parts.

A dictionary containing fluid power terms as per ISO 5589 is included in the package. Parts from the Festo product catalog can be imported into parts management via the DKI interface and then used in the project.

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

The EPLAN Fluid Hose Configurator provides the hydraulics user with a wizard for complete specification of a hydraulic hose line. The entries required to this purpose are displayed clearly and the user guided. 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 any supplier.

EPLAN Fluid 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.

The EPLAN Fluid Hose Configurator is available both as a functionality within EPLAN Fluid and as a stand-alone version. This can be installed separately and is suitable for use, for example, in mounting / manufacturing.

The following workflows thus result:

Complete editing by the designer with EPLAN Fluid

In this working method the EPLAN Fluid user uses the functionality of the hose line configuration as a wizard for defining the planned hose lines. The complete description of the hose line is carried out here within EPLAN Fluid.

Interaction between designer and installer (manufacturing)

In this working method the designer defines the hose lines and specifies framework data (pressure range, nominal diameter, etc., but not however the installation dimensions). The configuration can be exported using the export functions. The installer uses the stand-alone version of the hose line configurator and imports the transferred data. During installation of the hose lines he / she enters the installation dimensions really determined (for example hose line length, torsion angle, etc.) in the configurator and exports the enriched data. Subsequently the designer can transfer the data into the documentation without additional effort in EPLAN Fluid and generate the report pages.
Usage by the installer or Sales as a stand-alone version

In this working method the system is used completely without the EPLAN Platform. The hose line configurator here serves solely for the guided definition of the hose lines.

EPLAN Preplanning Professional

The engineering process of a machine / higher-level function consists of individual phases through which the concept is adjusted and specified from initial rough drafts and ideas, until all documents and information have been created that are necessary for the manufacture and construction of the machine.

Pre-planning and draft planning (Basic Engineering) represent very early project phases where concepts are worked out for the technical scope of machines / higher-level functions and estimates are done on initial quantity structures. The goal is to determine the concept that is most advantageous technically speaking, and to define the defaults for the subsequent detailed planning (Detail Engineering).

With the "EPLAN Preplanning Professional" add-on you can record and manage the technical data for process automation or automation technology in mechanical and plant engineering in the EPLAN Platform already at an early phase of the engineering process.

The integration of pre-planning into planning ensures significantly reduced expenses, while improving project quality thanks to the data consistency. Thanks to its far-reaching flexibility, EPLAN Preplanning Professional allows for a very easy start into this planning method.

The central pre-planning dialog of the EPLAN Platform is the pre-planning navigator. This dialog displays and manages the pre-planning data defined in a project. By using so-called "pre-planning macros" as well as copying and moving existing segments via Drag & Drop, you can create and edit machine / higher-level function structures. Parallel to the view in the pre-planning navigator the user can also create graphical machine / higher-level function overviews or P&IDs in the graphical editor of EPLAN on corresponding pre-planning pages. This graphical information is linked with the pre-planning data in the navigator and can be edited in both views.

The described functionalities are only available for certain module packages. See the Licensing Overview chapter.
As a further alternative in data acquisition, pre-planning offers a comprehensive import functionality that can be used to import data from Excel tables into the EPLAN Platform. This way, information from other planning departments can be used to generate in EPLAN pre-planning structures through import.

The data entered at the segments and planning objects in pre-planning can be output in reports, and can thus be used, for example, for bills of materials or for calculations of price and expenditure. From within pre-planning (pre-planning navigator), the detailed planning in EPLAN Electric P8 (schematic) or EPLAN Fluid (fluid schematic) can also be created in a subsequent planning phase via Drag & Drop. Thanks to the interaction of EPLAN Electric P8 and EPLAN Fluid on the common platform, a consistent and common documentation for process automation in mechanical and plant engineering can be created.

**EPLAN Preplanning P&ID**

The "EPLAN Preplanning P&ID" add-on makes extensive editing functions available for the graphical and database-oriented creation of P&IDs – generally plant overviews.

On the basis of a symbol library you create these schematics as an integral component of the machine / plant documentation and can already record the plant data in the project database during the pre-planning phase.

The graphical editor of EPLAN supports you through functionalities for graphics and macro editing in the project planning process.

Parallel to the graphical placement of the PCT loops, 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. Through the integration into the EPLAN Platform, the project data recorded in the course of the P&ID creation are available in the subsequent disciplines fluid power (in EPLAN Fluid) and electrical engineering (in EPLAN Electric P8). The central data maintenance allows comprehensive synchronization of information and a comprehensive engineering process across all department boundaries.
EPLAN Data Portal

The "EPLAN Data Portal" extension module makes web-based device data and master data of major 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.

High-quality master data facilitates uniform use in EPLAN and increases the quality of the project documentation, from the schematic, through detailed reports, to integration of manufacturer documentation (data sheets, operating manuals) in high-quality manufacturing specifications.

The EPLAN Data Portal simplifies considerably for the designer the integration of parts data with the engineering process. While planning, he or she 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.

Detailed item data is of crucial significance even in downstream use of documentation during servicing and maintenance work.

A software maintenance agreement is the prerequisite for using the EPLAN Data Portal.

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

The "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 extensively to your requirements. Maximum integration is achieved in this way, reducing work processes and accelerating the workflow.

Utilization of the API and the possible cooperation between EPLAN and software providers in the EPLAN environment are governed in the EPLAN API Developer Network (EADN).

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

Workstation

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

Recommended Workstation Configuration

<table>
<thead>
<tr>
<th>Component</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor</td>
<td>Multicore CPU, not older than 3 years</td>
</tr>
<tr>
<td>RAM:</td>
<td>8 GB*1</td>
</tr>
<tr>
<td>Hard disk:</td>
<td>500 GB</td>
</tr>
<tr>
<td>Monitor / graphics resolution:</td>
<td>2-screen solution 21” or 16:10 graphics system with a resolution of 1680 x 1050</td>
</tr>
<tr>
<td>3D display:</td>
<td>Graphics card from ATI or Nvidia with the latest OpenGL driver *2</td>
</tr>
</tbody>
</table>

*1: Individual functions like PDF or DXF output require more memory in connection with large projects or very extensive graphics.

*2: A graphics card comparable with an Nvidia Quadro 600 should be used when EPLAN Pro Panel is used.

Network

We recommend using a Microsoft Windows network.

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net transfer rate of the server:</td>
<td>1 Gbits/s</td>
</tr>
<tr>
<td>Net transfer rate of the client computer:</td>
<td>100 Mbits/s</td>
</tr>
<tr>
<td>Recommended latency</td>
<td>&lt; 1 ms</td>
</tr>
</tbody>
</table>
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 2.5 the programs of the EPLAN Platform are only available as a 64-bit-version.

Operating Systems

The EPLAN platform only supports the 64-bit variants of the Microsoft operating systems Windows 7 and Windows 8 / 8.1.
The EPLAN user interface language installed must be supported by the operating system.
The Microsoft .NET framework 4.0 is required to operate the EPLAN platform.

The program is released for the following operating systems:

Workstation
- Microsoft Windows 7 SP1 (64 bit) Professional, Enterprise, Ultimate
- Microsoft Windows 8 (64 bit) Pro, Enterprise
- Microsoft Windows 8.1 (64 bit) Pro, Enterprise

Server
- Microsoft Windows Server 2008 R2 (64 bit)
- Microsoft Windows Server 2012 (64 bit)
- Microsoft Windows Server 2012 R2 (64 bit)
- Terminal Server with Citrix XenApp 7.6 and Citrix Desktop 7.6

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

Prerequisite for the creation of Microsoft Office file formats from EPLAN is a functioning installation of an Office version as approved by EPLAN on the PC.

- Microsoft Office 2010 (32 bit and 64 bit)*
- Microsoft Office 2013 (32 bit and 64 bit)*
- Microsoft Internet Explorer 10
- Microsoft Internet Explorer 11

*Depending on the selection of the databases for the parts management, the project management and the dictionary, the use of the 64 bit Office version is mandatory.

SQL Server (64-Bit)

- Microsoft SQL Server 2008 R2
- Microsoft SQL-Server 2012
- Microsoft SQL-Server 2014

Autodesk Products (64-Bit)

- AutoCAD 2015
- AutoCAD 2016
- Autodesk Vault 2014 - on the basis of EPLAN EPR/PDM Integration Suite
- Autodesk Vault 2015 - on the basis of EPLAN EPR/PDM Integration Suite

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PDF Redlining

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

PLC Systems (PLC & Bus Extension)

- ABB Automation Builder 1.1
- Beckhoff TwinCAT 2.10
- Beckhoff TwinCAT 2.11
- 3S Codesys
- Mitsubishi GX Works2
- Rockwell RSLogix professional 20
- Rockwell RSLogix professional 21
- Schneider Unity Pro 7.0
- Schneider Unity Pro 8.0 / 8.1
- Siemens SIMATIC STEP 7 version 5.4 SP4
- Siemens SIMATIC STEP 7 version 5.5
## Licensing Overview

- Standard functionality  
- Optional extension module / add-on  
- Not available

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✓ Included  
O Optional  
- Not available
## Performance Description

Contents: EPLAN Electric P8 Version 2.5  
Status: 09/2015

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

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**Performance Description**  
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Status: 09/2015

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Errors and changes reserved.