

# Performance Description

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**Note: The hardware requirements specified by the operating system manufacturers must be considered. Hardware combinations that cause faults according to information from manufacturers may also affect the operation of EPLAN. Therefore an accurate basic installation of hardware, operating system and hardware drivers (e. g. graphics board driver etc.) is essential for a smooth operation of EPLAN. Therefore, the main conditions and areas of application specified by the hardware manufacturers also apply to the operation of EPLAN.**

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# Introduction

Internationality

## NO FRONTIERS

Our customers work around the globe – so do we

Nine German branches and over 50 sales and service centers worldwide guarantee you the support you want. Anytime, anywhere. Over 18.000 customers with more than 60.000 installations trust us. Place your trust in a partner with consistent practical orientation, many years of experience, individual services and international presence.

As a Rittal subsidiary in the Friedhelm Loh Group, EPLAN Software & Service represents continuity and investment security.

For over 20 years, the name EPLAN Software & Service has stood for innovative software solutions and service concepts for electrical and fluid project planning and design. Today, EPLAN Software & Service is one of the world's leading technology providers.

Benefit from our "Professional Services", which can greatly ease your daily work and allow you to develop your engineering projects flexibly and on-time. We determine your optimization and savings potentials in the engineering process – and support you as you tap your creative potential in development and project planning. At the same time, we introduce and integrate new technologies into your existing systems for you.

Individual consulting services prior to system selection, conception and execution of individually customized training, consulting services and the development of special solutions round off our range of services.

Standardization concepts, interface customization and special programming ensure that your company can more effectively complete its engineering tasks. This benefits both you and your customers. If you utilize all potentials offered by modern CAE

systems, the "time to market" factor is reduced and you can bring innovative products to the market faster.

EPLAN your Engineering stands for high-end solutions in all engineering disciplines related to automation technology and services for the customization and integration of our systems. Our cooperation with Autodesk underlines top competence in the area of mechanical design.

# Revolutionary PLATFORM STRATEGY

## Pure integration for rapid results

EPLAN Electric P8 facilitates the transparent communication of different CAE disciplines on a common platform for the first time. You will tap into the future of global engineering with the revolutionary EPLAN platform technology. The platform provides core functions that are required in electro-CAE as well as in fluid or E / I&C engineering - combined with a unique link to mechanics.

## Outstanding potential

All the systems are fed from the same data basis, so that redundant data inputs, for example, are a thing of the past. In addition, the platform contains uniform, cross-disciplinary basic functionality such as the graphical editor, shared rights management, viewer, translation functions and revision function. It goes without saying that third-party tools can also be incorporated. The framework concept impresses with its fast results - your key to success.



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The described functionalities are only available for certain module packages.  
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## **EPLAN Electric P8 – Integrated Engineering**

### **P for POWER**

For your engineering

### **P for PRODUCTIVITY**

For time to market

### **P for PERFORMANCE**

For high-speed engineering

### **P for PROCESS**

For absolute transparency

### **P for PROGRESS**

We ensure your progress

### **P for PRECISION**

For made-to-measure planning

### **P for PASSION**

For future-proof technology

### **P for PREMIUM**

For quality and security

# Limitless POSSIBILITIES

## EPLAN your Engineering

The world of engineering is changing at a dizzying pace. Projects increasingly have to be implemented across companies and internationally. New development and work technologies require open, flexible systems. Meanwhile, pressure from time and competition is rising.

With EPLAN Electric P8, you open up a new dimension in engineering. Its unique range of functions makes global interdisciplinary operation a reality. The free choice between graphical and object orientation is also exceptional: EPLAN Electric P8 is designed to meet user needs without limitations, thus creating the technological basis for your success. The uniform "Look & Feel" helps engineers to work securely with the software and leads to rapid results.

Regardless of whether you want to standardize, or just want to benefit by a huge relief in your workload – you can save a great deal on engineering compared with previous systems thanks to the new variant technology.

Guaranteed time savings and smooth operation: All logical information and device options are managed in a central database in EPLAN Electric P8.

The simplicity of the new system startup piques interest on sight – and continually impresses as it supports you in your daily work. Whether you're a novice or an experienced user of EPLAN products: you can get started right away.

With its marked practical orientation and high level of user comfort, EPLAN Electric P8 sets new standards in engineering. Proven methods and innovative developments have been combined in one extremely efficient solution.

EPLAN Electric P8 ensures high productivity from the start. This is ensured by the advanced platform technology and complete adaptability to your needs, as well as full data transfer from EPLAN 5 and EPLAN 21, the variant technology, the comprehensive automation options, and the internationality of this CAE solution. Versatile interfaces facilitate perfect integration for efficient work processes. In short, EPLAN Electric P8 is the solution for unlimited possibilities in interdisciplinary project planning related to automation technology for machine and plant design.

Conclusion: To shape your future, use EPLAN Electric P8.

EPLAN Electric P8 stands for:

- Innovative technology
- Maximum integration
- Collaborative engineering
- Impressive quality
- Outstanding service
- Continuity
- Maximum investment security.

The core features of EPLAN Electric P8 are explained individually in the following chapters. However, it is beyond the scope of this document to provide all details. If you have any further questions – particularly on details you don't find in this description – just contact us at [info@eplan.de](mailto:info@eplan.de).

Monheim, June 2008

Product Management  
EPLAN Software & Service GmbH & Co. KG



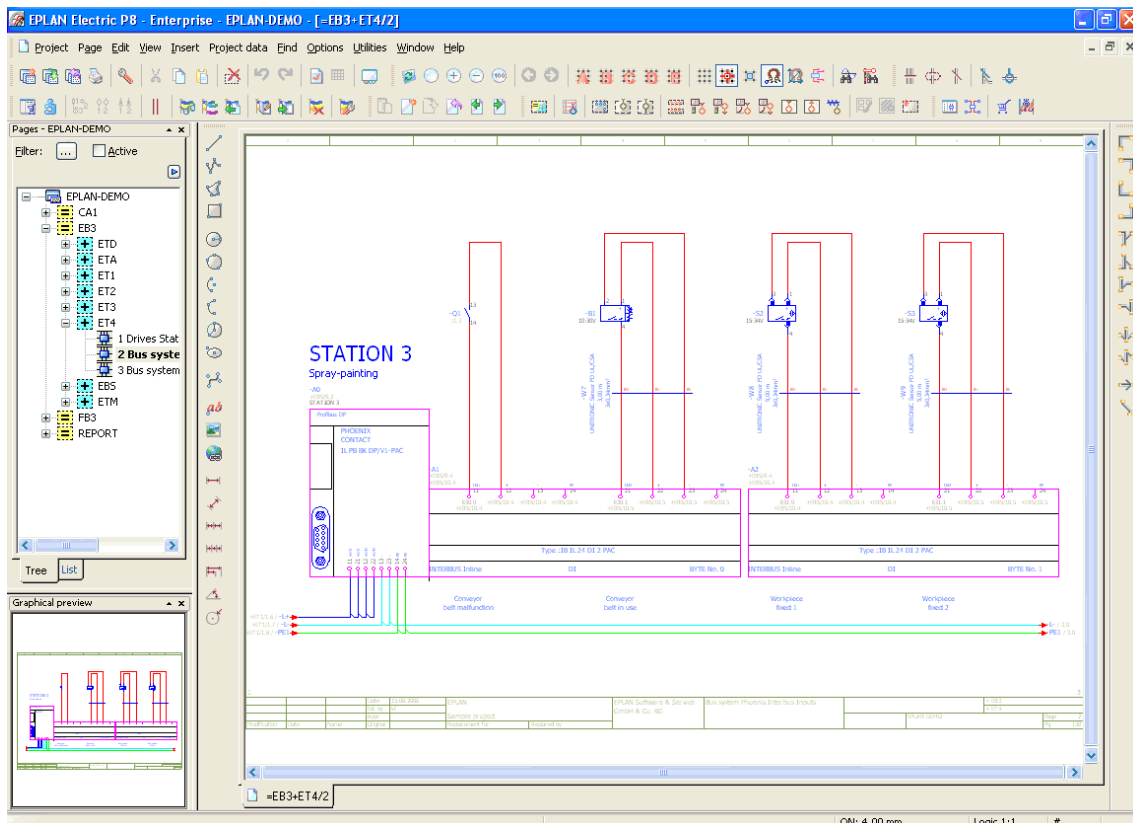
**Note:**

The scope of service contained in this description applies exclusively to the "EPLAN Electric P8 Professional" product with all add-ons. For the features of all other program variants, please see the "Licensing Overview" chapter at the end of this document.

# User Interface

## Look & Feel

The system provides an intuitive user interface. Windows-compatible operation with functions like "Drag & Drop" allow beginners and occasional users to quickly acclimate.



Users can easily adapt the entire user 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. This allows the user to focus the actual work – the engineering – because a user interface customized to suit the task at hand allows efficient and fast planning.

You can also use a special function to create custom keyboard shortcuts. User-defined keyboard shortcuts are also displayed in the menu bar.

Experienced users achieve high input speeds using continuous keyboard control.

In addition to the standard data entry fields for properties, supplementary fields are also available that can be assigned user-defined names. This allows the use of established terms in EPLAN Electric P8. This makes system familiarization and the implementation of company-specific standards much easier.

## **Workflow & Integration**

The entire system can be configured using settings to meet the needs of the user, company, and project. The result: The workflow is accelerated and the required work result achieved as quickly as possible.

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

A module for backing up data, archiving, and sending projects via e-mail ensures the necessary security and transparency of work results. A compression function removes all non-essential data from a project on demand to ease the burden on the storage medium and simplify data storage.

The XML, PDF, DXF / DWG with layers and PXF data formats are available as interfaces for exchanging data 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. A standardized level of information with no redundancy or inconsistency ensures maximum speed with no errors in the planning process.

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

## Redlining

"Redlining" describes a workflow for revising project documentation. With this process, a project creator or editor sends a plan to a project commentator. The commentator comments, changes or enhances the plan and sends it back to the project creator. The creator then revises the plan based on the comments and adopts the changes in the original documentation. This type of workflow is now supported by EPLAN Electric P8.

Schematics can be output as PDF files and then enabled for commenting in Adobe Acrobat Professional or Adobe Acrobat Standard. Comments can then be added to the PDF document using the Adobe Reader or Adobe Acrobat Standard. These comments can then be read back into the original EPLAN project. This creates a workflow in which the actual "Redlining" is performed digitally outside of EPLAN Electric P8, with the information being consistently acquired and allowing the documentation to be easily maintained in an "As-Built" state.

The Comment navigator allows editing or selection of the comments in a project. This dialog shows tree and list views of all PDF comments in the currently open EPLAN project. You can jump to the associated PDF comment in the EPLAN page via the popup menu.

This provides optimum support to the project editor in maintaining the comments. Paper documents or faxes are no longer necessary and the comments are easy to find and read. This greatly accelerates the feedback of information and produces higher quality results.

## 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 – planning functions / drawing schematics / processing bills of materials – is possible.

The program is designed so that editing in the system can always follow the actual course of the project. The system allows editing the project from different perspectives at any time. This releases new productivity potential in engineering and also increases transparency.

## **Graphical Sub-schematics**

You can create and use any number of graphical symbols and sub-schematics (macros). Automatic naming of devices as they are combined reduces manual inputs – and therefore input errors also. Configurable checks immediately draw your attention to potential errors where necessary.

## **Function-oriented view**

High-level object orientation permits the synchronous processing of devices 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.

Conclusion: Fast results with the best 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 furthermore also gain decisive advantages in productivity by coordinating planning and production.

# Projects

Schematics and corresponding documents such as lists and overviews are created as pages within projects. A project is a database in which all 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 Wizard

Users specify basic technical conditions at the start of a new project. A project wizard helps to select settings for standards, numbering and identifier schemes, project structure, project header data, and much more. The new project therefore directly complies with the required format.

## Project Master Data

The master data pertaining to the project, such as the plot frame, forms, symbols, etc., is stored in the project.

This ensures that the project is always 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 always 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 and mounting locations. Reports can also be included

automatically in this subdivision. The following identifier blocks are available for defining the project structure (IEC 61346 standard):

- = = Functional assignment
- = Enclosure
- ++ Installation site
- + Mounting location
- & Document type (KKS identifier)

Higher-level function number

User-defined identifier block

The position of the "Document type" identifier block (KKS identifier) can be defined specifically for each project. In your own project structure, you can specify user-defined prefixes for plant numbers and user-defined identifier blocks.

The schematics can also be created in compliance with the NFPA standard used in the USA or the GOST standard used in Eastern Europe. The system helps users to manage the structure identifiers with descriptive texts, sorting functions, and a usage test. Structure identifiers that are no longer used can be automatically removed. 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.

## Project Management

The system 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 all projects into a project management database.

In project management, you can also view project-specific and cross-project information. A comprehensive range of functions provide ease of use – e.g., when revising, backing up, or filing off multiple projects at the same time.

Project properties can be processed in blocks in project management. You can also output a complete overview of all project header data from a project, and display all 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.

## 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 all page formats.

Alternatively, the page name can be combined with letters or sub-identifiers. This is used to comply with many different standards and work regulations.

Documents in different formats such as Word or PDF can be integrated as pages. The complete documentation therefore includes all information created using different tools.

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

## Page navigator

The pages of a project are displayed in the page navigator in either a list or tree structure. With the aid of a graphical preview, all 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.

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

The page navigator and the graphical editor also have an additional "Create page macro" menu item. This can be used to easily store the current page, and subsequent pages if necessary, as the default solution for a task.

The ease of use of these functions thus simplifies the re-use of partial solutions, 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 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 pages. It can be used to create e.g. diagrams, graphics, mounting panels, macros, symbols, forms, and plot frames.

This gives all areas a uniform, consistent "Look & Feel" – and eases familiarization.

Hyperlinks to a document on the network or Internet can be inserted anywhere as text. The user can use this function to dynamically store further information directly in the schematic. 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. The "Scroll behavior" can be set to correspond 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 revision of the schematics in just a few working steps. The displayed data used in the schematic can also be very easily and securely edited by untrained users.

## **Global Editing**

Output data can be directly edited on automatically generated report pages. This modification is immediately adopted object-oriented to the entire schematic.

The "Properties (global)" editing option is also available on report pages and makes it possible to edit the data 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. Die "Direct editing" editing option can also be used on report pages. As soon as you confirm a change, the objects are also updated on all other pages.

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 the diagram 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 is always 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. All 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 all docked properties also change.

When revising schematics, the layout of texts on the 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: 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 Graphics

The 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 a wide range of 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 functions 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.

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 / mirrored 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.

## 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 page in 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 printed in the schematic allows you to display distributed items and locate the corresponding components from a multitude of 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.

Automatic generation and formatting of cross-references spares you a lot of typing and ensures the correct referencing of items.

## **Automatic Contact Image**

The system automatically generates the contact image representation 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.

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 items 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, 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 eight variants 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, it is possible to exchange an inserted macro for another in the schematic.

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 with construction variants, used to implement individual customer requirements and different machine configurations, are becoming ever more common. Examples of this are optional plug connections for fast, installation-friendly exchange of machine components or variable motor controllers for flexible use of drives. These are also represented in different ways in the documentation.

To simplify planning these machine variants, you can store data records on the EPLAN macros as variants (i.e. as value tables for technical data and part information). This eliminates the need for manually editing macros after inserting them. Placeholders can be defined for all data in a macro.

The selection of a variant during the design phase provides all values and the appropriate circuit for the current requirement in the program. The selected values can also be quickly and easily switched over later in the finished schematic.

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.

# Single Line

The "Single-line" representation is a graphical solution for clear block representation that can be combined and used in any way necessary.

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.

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.

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.

In comparison to a pure 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 display using a string. You can create a string 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 pages via interruption points.

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

# Items

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.

For items such as terminals, plugs, PLCs, cables, connections, potentials, and interruption points, there are central navigators with special functions. These provide you with clear editing options that are independent of the representation on different schematic pages. This simplifies the creation and editing of items considerably.

Complex or unknown items don't have to be described in detail in the system before you can work with them. The black box function 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 functions 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 in the same way as devices and check them using pre-definitions. It's important to note here that the terminal designations don't necessarily have to be specified.

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

## Plugs

Plugs can be considered as an entire component or as the individual parts "male pin" and "female pin". Even if the male and female pins 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 pages. Plug-in add-ons form simple proprietary 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.

## Connections

The system includes a connection navigator allowing editing across pages. Many different types of connection can be displayed and differentiated – e.g., hydraulics, pneumatics, electrics, cable, tube, pipe, wire, wire jumper, saddle jumper, 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 a fuse placed directly on a busbar. This connection is not numbered, but it is a connection used for target tracking.

You can enter project-wide, potential-wide, or signal-wide defaults for the properties of connections. Using connection definition points, information can be assigned to each individual connection, e.g. connection point designations, cross-section, color, conductor / connection number, intrinsic safety, etc. This 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 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 limited to only numbers, but may also contain letters and 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.

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 hoses (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.

Above a certain number of conductors, spare conductors can be specified automatically for cables (in percent or as a number). The work standards of different companies that prescribe a specific percentage or 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", "Spare conductors", and "Add up cable lengths", considerably reduce the planning effort for cables.

## 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.

# PLC & Bus Extension

## PLC Processing

The system helps you to manage PLC controls and bus systems. All 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. Several bus systems may be connected to a single PLC, or a single bus system may contain several PLCs.

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, post edit and synchronize assignment lists with the schematic. This avoids tedious manual synchronization and ensures an optimum cross-disciplinary engineering process.

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

## Bus Structure

You can map your bus topology with symbols on a schematic page. The system then manages the bus addresses with the dependencies of the slave and master configuration.

The following exchange formats are available for bus data:

- Beckhoff TwinCAT
- Phoenix Contact PC Worx
- Schneider Unity Pro
- Siemens SIMATIC STEP 7

- PLC standard exchange format
- EPLAN Electric P8

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 correlation of the master and slave structure of the bus is displayed in the bus configuration navigator. You can also see which racks and modules form this structure in hardware.

Automatic synchronization of views allows you to see at all times how bus structure and hardware are connected. Bus systems can be planned very productively using this clear display.

## **Automatic generation of schematics from PLC data**

You can import PLC functions from a bus configuration file, or create them in the PLC navigator or bus configuration navigator. Assignment lists and hardware configuration from the PLC tools of the manufacturer are used as the source data. EPLAN Electric P8 provides automatic placement of PLC functions, thus allowing PLC schematics and various overview pages to be generated at the push of a button.

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

This feature relieves the electrical engineer from manual drawing tasks. The planning of the PLC and bus components is then completed more quickly and at a higher level of quality.

## **Synchronization of PLC bus configuration data**

When importing PLC data, a synchronization dialog gives you control over the import process. In this dialog, you define which data is to remain unchanged, which data is overwritten and which data is to be additionally imported. The DT and the PLC type designation are the identifying

properties for the synchronization, i.e. PLC functions with the same DT and the same type designation are regarded as identical.

This allows targeted bidirectional synchronization of data, thus allow simultaneous parallel development of the electrotechnology construction and the PLC programming. This significantly reduces the planning time required.

## 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 they 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.

## Mounting Panel

In addition to pure schematic creation with the associated plans and lists, the program 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 via "Drag & Drop", all devices used in the schematic, or all devices 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 page as the mounting panel. It is also possible to output the legend as a separate form on its own 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 automatically generated legend increases the clarity of the mounting panel representation considerably and provides the important structural information required for production.

## Editing items

### Navigators

The different navigators offer page-independent views of the project data. For example, in the device navigator all 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 page is opened and the component selected.

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

## Parts management

Parts management is used to store part-specific and supplier-specific information multilingually and in different currencies so that it can be combined with the project currently being edited. The program also processes part variants as identical part numbers with identical sales data, but with partly differing technical data.

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 therefore 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 function allows you to plan more quickly because 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.

The parts can be structured according to the individual perspective of the customer. Standardized structures such as VDMA, eCI@ss and eTim are also possible. The image in the EPLAN platform optimally adapts to the existing structure and way of thinking. This allows maintenance and stepwise selection of the items in a selection tree based on customer-specific criteria. This makes the entire parts area intuitive, fast and easy to handle.

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.

If you use foreign-language designations, you can create and edit the master parts data in different languages. You can automate translation using the "Translation" function.

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

The parts data is saved in either an Access database or an SQL Server system. Support for an SQL databases allows major improvements in the performance of the parts management system (and the parts selection) when dealing with large volumes 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 its own.

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

## **Device Selection**

When selecting devices, the system offers parts matching the functions 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. Devices are selected based on their technical features and parts are automatically offered which have a "matching" or a "larger" set of functions than required.

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 the option of performing logic checks on the schematic pages, which supports the user in the creation of correct electrical drawings.

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, e.g. incomplete cross-references or interruption points, incorrect potential definitions, etc. The projects can be checked online or offline as desired.

The user can determine which criteria should be checked and how the corresponding messages are to be classified. 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. For all

project planning messages, an extensive description and correction suggestions are available in the online help.

If desired, the message texts from the message management can be displayed in the graphical editor. If (e.g.) an incorrect value is entered at a component (e.g. entry of an already assigned device tag), or an incorrect action is executed, then a message text is immediately displayed in the graphical editor.

With this feature switched on, and using the appropriate checking type ("Online / offline"), planning mistakes are visible as soon as they occur in the schematic and can be immediately corrected or avoided.

These checks are available in all areas of schematic creation. The accuracy of the documentation can be checked automatically to identify errors at the planning stage and reduce commissioning times.

## 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 all designations are correct and eliminates the need to type the information into a labeling system.

# Concurrent Engineering

Multiple users can complete a schematic simultaneously in multi-user operation – network-wide across borders and continents. You can see which users are currently working on a project in project management.

If multiple users attempt to work on an object at the same time, a message is displayed. No special settings are required in the program for this.

This can be used to prevent or anticipate time bottlenecks and work through large projects more quickly.

## 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, 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 parts accidentally being given the same description.

## 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 (subsequently). Connection designation formatting is flexible.

The designation is not limited to only numbers, but may also contain letters and 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 / or a subcounter can be specified.

Settings for connection numbering are saved in schemes. In this way, you can access previously specified settings at any time 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 machines 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 one numbering run.

## Block Editing

Block editing is used similarly for all 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 all elements, you see this value. Otherwise, a placeholder appears, which can be edited.

You can change or synchronize the shared properties of all 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.

## **Tabular Editing**

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

The DTs 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 transferred back.

In this way, data from identical objects distributed on different 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 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 & Feel" of other applications. Data can be modified automatically in external programs using scripts and similar functions.

## Finding / Replacing

The search for objects can be defined for the entire project, or just for specific 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 placeholders (such as "\*" and "?"). It is also possible to search for multiple related terms.

The results of a search can be entered into one of the two possible lists of results. You can enter the additional search results in the list of results and replace existing entries. You can also switch to the objects on the project pages.

You can right-click to open the editing dialog of the corresponding objects for the selected entries in a results list and make changes to the 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)

To process a project automatically, you create a script. The project actions to be automatically executed are defined in the script.

Scripts are stored on a per-project basis. 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.

# API Extension

Using a programming interface, you can control the system externally, or extend and adapt it customer-specifically. The functions in the system are structured in modules; they can be used directly in other programs. It is also possible to integrate customer-specific extensions seamlessly into the interface.

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

Programming languages supported by .NET, such as C# or "Visual Basic", can be used in addition to C++.

Code written in C# or "Visual Basic .Net" can also 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 all requirements. Maximum integration is achieved in this way, reducing work processes and accelerating the workflow.

# 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 program includes a wizard for adapting an existing project to the specifications of another standard.

All 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 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 redrawn.

## Multi Language Translation

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

The program can display every font in the world (Unicode). 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" function minimizes typing work in the same way as 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.

## 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 "Freeze report pages" option 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. All 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 printing item labels. It is possible to output the report pages into the same project or any other project.

Multiple short reports can e.g. 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 as multi-line, with plug pin assignments.

## Revision Overview

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

## 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-oriented.

## 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.

## Article Reports

- Parts lists  
All parts used in the project are listed individually.
- Summarized parts lists  
All parts used in the project are listed individually. Identical parts are consolidated and listed in summary.

## Device Tag List

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

## Administration

### Settings

The program allows you to configure individual requirements and needs. The settings are divided into four main categories, which are themselves divided into sub-categories. These are displayed as a tree view in the Settings dialog.

Using the project-related settings, you specify all properties in a project such as e.g. the graphical representation of objects. The project-specific settings are subdivided according to electronic functions. All 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 all workstations used.

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

The settings allow you to adapt the system's appearance and behavior to suit a wide range of 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.

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 page.

Forms and plot frames consist of static elements such as rectangles, lines, inserted bitmaps, 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 easily adapt plot frames and forms to suit company specifications. The resulting schematics have the desired appearance and the required content, but are created 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. All other project data is removed so that only the data used in the project remains. You can of course specify which project data should be removed.

The compression function can remove the pre-defined value sets for placeholder objects from the project. Search result lists and the message management can be cleared. 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" function can also be used to internally optimize the database.

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

## EPLAN Project Reference

This function identifies whether there are messages regarding errors, warnings, and notes for a specific project in project management. The last test runs performed are displayed with the status and number of messages generated.

Project participants, e.g. the customer, often send project versions to other project participants, e.g. suppliers, as suppliers of engineering services. These then edit the project and send back a newer version.

The project monitoring system allows you to check whether the project meets your requirements or conforms to the expected standards before loading the new project state. A project comparison between a comparison project and the incoming project allows you to check the following criteria:

- Is the project free of errors? A project is free of errors when all specified check runs are free of messages.
- Are the project-specific settings unchanged?
- Are the properties of the project data unchanged?
- Are the project specifications maintained?

If the project state does not conform to the requirements, then a message report documenting the differences to the project specifications can be created.

The "EPLAN Project Reference" function can be used to set and automatically check quality standards to be observed for the documentation. This simplifies and accelerates the management of projects that are exchanged between different companies.

## Revision Management

Revision management is used to automatically record and document subsequent modifications to existing higher-level functions. You can also access older versions of the project and mark the modified 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 page in a revision, the system identifies the changes as a draft. This is displayed graphically by a watermark on the page. This mark is retained until the 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 to another project state later. In this way, you can e.g. quickly identify which 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 repeatedly re-use settings once they have been specified.

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.

## User Rights Management

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

Using rights management, which is displayed in a tree structure, you can block dialogs, menu items, and toolbars in the user interface. Rights can be assigned to groups in blocks and individual editing functions, such as (e.g.) "Delete project", can also be blocked if desired. If a user does not have specific rights then the associated menu items are hidden. In this way, the system only offers users the commands they need to perform their tasks.

This allows an administrator to configure rights and also the menu structure. This relieves the users of menu items that they do not need. This increases the clarity of the program and increases operating speed and work effectiveness.

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.

When using the rights management, the module must be used at all EPLAN workstations in the company. This is the only way 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.

## Project Options

The new add-on module "Project Options" allows you to define sections of a machine or plant as options and then display or hide these in the EPLAN project. This way, configuration characteristics or a different dimensioning of a machine or plant can be easily represented and managed. Hidden options are not evaluated any more so that all reports of a project are also automatically adapted to the selected options. A new "Options navigator" is available for managing options. Like all navigators, this is also called up from the "Project data" menu. If particular customer requirements mean that you do not require part of a machine or plant for which an option has been defined, then simply deactivate the option in the navigator. The schematic and the reports are automatically adjusted.

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

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

He creates a new project from a basic project; then makes a number of settings – and the documentation for the actual order is complete. Due to the central management of all options in the navigator, operation of the software is very easy and intuitive for the user.

As processing preparation, your specialists can define template diagrams and 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 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 options.

The additional information (e.g. deactivated options) can be removed from a project prior to delivery. A special report is available for indicating which options are contained in the project and which ones are selected.

The workflow is controlled in connection with rights management. While the preparers 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 options. Based on the mechanical and fluid-specific planning, the result of an option is thus directly controlled within electrical engineering (including structure diagram and I / O assignment of PLCs).

## **EPLAN Mechatronic Integration (EMI)**

The EPLAN Mechatronic Integration (EMI) provides electrical constructors with new planning possibilities by coupling the EPLAN platform to Autodesk Inventor. Access to the 3D mechanical model directly from within EPLAN Electric P 8 allows the mechanical project data to be synchronized with the automation technology, through the use of digital prototypes. This coupling accelerates cross-trade construction by avoiding errors and simplifying the work processes.

The electrical engineer can use the 3D model to create (e.g.) all the production documents for cabling in EPLAN Electric P8 early in the project. A physical prototype is not necessary – this makes processes parallel and avoids later changes in production.

# EMI Cabling for Autodesk Inventor (Add-on)

In the Autodesk Inventor 3D model, the mechanical engineer places electrical engineering components with mechanical properties in the 3D model of the machine / system, such as (e.g.) actuators and sensors, electric drives or limit switches. On the other hand, the electrical designer plans the schematic corresponding to the 3D machine model using EPLAN Electric P8. The schematic represents the electrical view of the machine or plant, focusing on the selection of the automation components and their interconnection.

EMI makes the 3D model available to the electrical engineer in EPLAN Electric P8, which allows the planning steps needed from an electrical engineering point of view. However, this access to the 3D model is limited to exactly the functions that the electrical engineer requires for his or her task. He or she can navigate in the model but cannot change any of the mechanical characteristics.

## Cable lengths at the push of a button

Because the 3D model is integrated in the electrical design, the user can define a linking between the mechanical and electrical engineering components. Filter functions help to list the relevant components in a clearly understandable manner. Once the relationships have been defined, the bidirectional data exchange begins. Based on the mechanical specifications in the 3D model and the electrical wiring, the cable lengths can be determined based on the cable paths at the push of a button. Since only process-relevant data is exchanged between the system, the project remains clearly structured and is well accepted by all the project planners.

## Bidirectional data exchange

The calculated cable lengths can then be listed in the control documentation, with all necessary reports and production documents. The bidirectional data exchange provides the mechanical engineering department with the cabling information. In this way, both disciplines benefit from a direct exchange of information.

# EPLAN Fluid (Add-on)

This module 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 functions, 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 greatly simplifies the identification process.

You can use the trades "Hydraulics", "Pneumatics", "Lubrication", and "Cooling" to specifically influence fluid power-related reports. 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 standard DIN-ISO 1219-2. A frame can be assigned to device tags on fluid power items in compliance with the standard.

## Festo connection

The Festo connection provides an easy way of importing parts data from a Festo product catalog and using it in EPLAN Electric P8. You can easily configure the import settings – the assignment of the parts data – and customize them to suit your personal requirements.

The "Redirect Links" in the parts data provide access to a Festo web page containing the latest documentation and technical data of the part.

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 DK1 interface and then used in the project.

The entire system is based on shared data storage for electrical engineering and fluid power, which facilitates integral management of the

project without synchronization or interfaces. This results in a uniform "Look & Feel", from the user interface to the documentation.

Once created, pre-planning lists are available for common use. All changes are immediately and transparently visible on both sides, almost eliminating the need to manually exchange information.

This creates secure, seamless cooperation. You can clearly see which processor is planning which trade. Processing is therefore always carried out by the person with the corresponding expertise. Plants with mechatronic components can be planned, constructed, and commissioned more quickly and securely.

# EPLAN PPE (Add-on)

This module is used to plan the automation of process engineering machines and instrumentation & control and electrical engineering systems using common documentation. The pre-planning and so-called Basic Engineering of the instrumentation & control system is done in EPLAN PPE. The circuit diagrams are automatically generated in a project using page macros from EPLAN PPE Basic. The schematics generated are an image of the data from the EPLAN PPE database. All object information on the PCT loops, device, parts, and connection data are transferred and available for other reports.

The circuit diagram ("loop") for a loop or consumer can be split into several pages if necessary (i.e., for a large number of devices). The format and structure of the page macro can be adapted to individual requirements, as can the paths: They can be arranged horizontally or vertically and the page size can vary.

It is also possible to work with "typicals" (page macros or existing circuit diagrams as a template). This option simplifies the standardized representation of circuit diagrams considerably and ensures uniform documentation of the PCT loops at no additional expense.

The functions of the Electric area are used directly to generate, edit, and display circuit diagrams. All changes are immediately and transparently visible everywhere. This creates secure, seamless cooperation.

Connections are also managed under unplaced items, so that they can be fully processed and reported in the previously planned infrastructure and master cable.

The generated circuit diagrams are linked with the PCT loop directly as documentation. This allows you to quickly and easily access the corresponding schematic directly via the PCT loop. In addition, all schematics generated from EPLAN PPE are included in the document management so you can also access these schematics from there.

In this way, instrumentation & control engineering, electrical engineering, and report documents can be completely combined and uniformly managed – this simplifies operation because you are always working with the same user interface. It also simplifies documentation and creates a real, transparent workflow beyond the individual trades.

# Hardware Requirements for the Workstation

The computer platform is a PC with an Intel Pentium 4 or compatible processor.

## Minimum requirements for single-user operation and projects <= 100 logic pages:

Processor	Comparable to an Intel Pentium 4 at 2.4 GHz Comparable to an Intel Core Duo at 1.73 GHz
Memory	1 Gbyte
Hard disk	100 Gbyte
Monitor / graphics resolution	1280 x 1024

## Minimum requirements for multi-user operation or projects > 100 logic pages:

Processor	Comparable to an Intel Pentium 4 at 3 GHz Comparable to an Intel Core 2 Duo at 2 GHz
Memory	2 Gbyte
Hard disk	100 Gbyte
Monitor / graphics resolution	1280 x 1024

## Recommended configuration:

Processor	Comparable to an Intel Pentium D at 3 GHz Comparable to an Intel Core 2 Duo at 2,4 GHz
Memory	2 Gbyte
Hard disk	160 Gbyte
Monitor / graphics resolution	2-screen solution 21" or 16:10 graphics system with a resolution of 1680 x 1050
Multiple-button mouse recommended for individual function assignment.	

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

# Hardware Requirements for the Network

## Minimum requirements:

Network transfer rate of the client computer	100 Mbits/s
Network transfer rate of the server	1 Gbits/s
<b>A file server dedicated solely to the EPLAN data is required for multi-user operation.</b>	

## Approved software

### Operating Systems

The program is released for the following operating systems:

#### Workstation

- Windows XP Professional SP2 32 Bit

#### Vista operating systems

The EPLAN product platform is released for the following 32 bit or 64 bit Vista operating systems:

- Windows Vista Enterprise
- Windows Vista Business N
- Windows Vista Ultimate

#### Server

- Windows 2003 SP2

## **PLC systems (PLC & Bus Extension)**

- Beckhoff TwinCAT 2.10
- Phoenix Contact PC Worx 5.10.22
- Schneider Unity Pro 3.0
- Siemens SIMATIC STEP 7 5.3

## **Microsoft Office applications**

- Microsoft Office 2003
- Microsoft Office 2007

## **PDF Redlining**

- Adobe Reader Version 7.0
- Adobe Reader Version 8

## **SQL Server**

- Microsoft SQL Server 2005 SP2

# Overview of Functions

	Compact	Select	Professional
<b>Number of schematic pages</b>	<b>40</b>	<b>Unlimited</b>	<b>Unlimited</b>
User Interface			
Windows-compliant operation	✓	✓	✓
Dockable windows	✓	✓	✓
Multiple window arrangements can be saved	✓	✓	✓
"Drag & Drop"	✓	✓	✓
Adaptable toolbars	✓	✓	✓
Exporting / importing of toolbars	✓	✓	✓
Configurable keyboard shortcuts	✓	✓	✓
Extendable menu structure	✓	✓	✓
Undo / Redo with action tooltips	✓	✓	✓
Undo / Redo of several steps simultaneously	✓	✓	✓
Transfer format (brush function)	✓	✓	✓
Direct editing without dialog	✓	✓	✓
Edit diagram from within reports	✓	✓	✓
Support for every language in the world	✓	✓	✓
Usage of all Windows fonts	✓	✓	✓
Graphical preview	✓	✓	✓
Preview for properties	✓	✓	✓
Didactic help system	✓	✓	✓
Data exchange via XML, text format, CSV, ODBC, COM	✓	✓	✓
Integrating documents from other programs as pages	✓	✓	✓
Hyperlinks	✓	✓	✓
Integration of Microsoft Office	✓	✓	✓
Redlining with PDF	✓	✓	✓
Method			
Planning start with schematic	✓	✓	✓
Planning start with bill of materials	✓	✓	✓

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See the Licensing Overview chapter.

	<b>Compact</b>	<b>Select</b>	<b>Professional</b>
Function-oriented view	✓	✓	✓
<b>Projects</b>			
Number of projects	Unlimited	Unlimited	Unlimited
Opening multiple projects	✓	✓	✓
Creating your own project templates	✓	✓	✓
Creating your own user-defined identifier structure in a project	✓	✓	✓
Storing projects on any "file servers"	✓	✓	✓
Project exchange via storage medium or e-mail	✓	✓	✓
Structuring projects (e.g., by customer)	✓	✓	✓
Meeting of corresponding standards ISO, EN, DIN, NFPA, IEEE, GOST	✓	✓	✓
<b>Project Management</b>			
Project management across drives	-	Add-on	✓
Backing up, filing off, copying, managing several projects	-	Add-on	✓
Creating project lists	-	Add-on	✓
Outputting project header data	-	Add-on	✓
Block editing for project properties	-	Add-on	✓
<b>Pages</b>			
Number of schematic pages	40	Unlimited	Unlimited
Number of symbols	Unlimited	Unlimited	Unlimited
Number of symbol libraries	Unlimited	Unlimited	Unlimited
Creating your own symbols	✓	✓	✓
Symbol logic controllable	✓	✓	✓
Update symbols in the schematic	✓	✓	✓
Eight variants per symbol	✓	✓	✓
Inserting symbols via "Drag & Drop"	✓	✓	✓
Electrical engineering IEC / DIN symbol library	✓	✓	✓
Electrical engineering NFPA / JIC symbol library	✓	✓	✓

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The described functionalities are only available for certain module packages.  
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	<b>Compact</b>	<b>Select</b>	<b>Professional</b>
Open multiple pages and display as workbooks	✓	✓	✓
Design variants	✓	✓	✓
Multi-line display	✓	✓	✓
Overview display	✓	✓	✓
Black box display in the schematic	✓	✓	✓
Support for any page format	✓	✓	✓
Viewing path division with auxiliary lines	✓	✓	✓
Designating paths automatically	✓	✓	✓
Visualizing empty text boxes	✓	✓	✓
Enlarging text on screen to minimum size	✓	✓	✓
Autoconnecting (draw connections automatically)	✓	✓	✓
Pre-Connecting (connection preview)	✓	✓	✓
Smart-Connecting (rubber band function)	✓	✓	✓
Diagonal autoconnecting (rotate connections)	✓	✓	✓
Graphical grouping of symbols and graphics	✓	✓	✓
Logical grouping of machine parts	✓	✓	✓
Nesting logical groups of machine parts	✓	✓	✓
Automatic cross-references of interruption points	✓	✓	✓
Placing contact image and designations individually anywhere	✓	✓	✓
Configurable coordinate system / grid, base point moving, relative coordinate input	✓	✓	✓
Grid and grid snap can be activated	✓	✓	✓
Aligning elements horizontally and vertically	✓	✓	✓
Object snap can be activated	✓	✓	✓
Layer management	✓	✓	✓
Defining your own layers	✓	✓	✓
Scale display	✓	✓	✓

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

	<b>Compact</b>	<b>Select</b>	<b>Professional</b>
Dimensions: Linear dimension, aligned dimension, continued dimension, incremental dimension, baseline dimension, angular dimension, radius dimension	✓	✓	✓
Conversion of dimensions metric to inch	✓	✓	✓
Scaling, stretching graphics	✓	✓	✓
Putting graphic in foreground or background	✓	✓	✓
Processing bar for graphics format	✓	✓	✓
Graphic functions: Line, polyline, polygon, rectangle, circle, circle through 3 points, arc through center, arc through 3 points, sector, ellipse, spline	✓	✓	✓
Texts: Rotating by any angle, scaling, italics and bold	✓	✓	✓
Docking texts together	✓	✓	✓
Automatic path function texts	✓	✓	✓
Processing bar for text format	✓	✓	✓
Printing in color or black and white	✓	✓	✓
Importing / exporting image formats	✓	✓	✓
Importing / exporting settings for DXF / DWG	✓	✓	✓
Output as PDF with search function, navigation and links	✓	✓	✓
Entire schematic in one PDF file possible	✓	✓	✓
<b>Single Line</b>			
Single-line display	-	Add-on	✓
Automatic conversion multi-line / single-line representation	-	Add-on	✓
Displaying connections grouped	-	Add-on	✓
<b>Items</b>			
Planning of multiple bus systems	✓	✓	✓
Planning of multiple PLC systems	✓	✓	✓
Managing terminals	✓	✓	✓
Managing plugs	✓	✓	✓
Managing cables	✓	✓	✓

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

	<b>Compact</b>	<b>Select</b>	<b>Professional</b>
Adding up cable types	✓	✓	✓
Generating cables automatically	✓	✓	✓
Designating items automatically, cross-referencing automatically, pre-planning without schematics	✓	✓	✓
Planning of nets	✓	✓	✓
Planning of potentials and signals with highlighting	✓	✓	✓
<b>PLC &amp; Bus Extension</b>			
Cross-page PLC editing	-	Add-on	✓
Cross-page bus structure	-	Add-on	✓
Automatic PLC diagram	-	Add-on	✓
Automatic PLC card overview	-	Add-on	✓
Synchronization of PLC data with configuration systems	-	Add-on	✓
Automatic creation of schematics from PLC data	-	Add-on	✓
<b>Mounting Panel</b>			
Planning of mounting panels	Add-on	✓	✓
Planning start with mounting panel	Add-on	✓	✓
Graphical detail display on mounting panels	Add-on	✓	✓
Automatic display via H / W / D on mounting panels	Add-on	✓	✓
Picking list for mounting panel	Add-on	✓	✓
Cable ducts	Add-on	✓	✓
Panel layout	Add-on	✓	✓
Automatic enclosure legend	Add-on	✓	✓
<b>Editing items</b>			
Elements without logical report	✓	✓	✓
Page-independent navigation in the project	✓	✓	✓
Parts management with technical data	✓	✓	✓
Parts management with sales data	✓	✓	✓
Connecting parts management externally	✓	✓	✓

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

	<b>Compact</b>	<b>Select</b>	<b>Professional</b>
Definition of assemblies	✓	✓	✓
Definition of modules	✓	✓	✓
Definition of accessory parts	✓	✓	✓
Varied graphical representation of parts	✓	✓	✓
Parts selection with automatic prefilter	✓	✓	✓
Planning of parts included in delivery	✓	✓	✓
Pre-definition of devices	✓	✓	✓
Wiring devices without schematic	✓	✓	✓
Checking schematic for logical inconsistencies	✓	✓	✓
Finding unused devices	✓	✓	✓
Finding devices without designation	✓	✓	✓
Finding incomplete devices	✓	✓	✓
Finding under-assigned devices	✓	✓	✓
Finding over-assigned devices	✓	✓	✓
Interfacing			
Labeling of labels and signs	✓	✓	✓
Concurrent Engineering			
Multi-user operation in a project	-	✓	✓
Bulk data processing			
Tabular editing functions	✓	✓	✓
Editing blockwise	✓	✓	✓
Scripts	✓	✓	✓
Command line parameters	✓	✓	✓
Automatic DT designation	✓	✓	✓
Suggesting identifiers intelligently	✓	✓	✓
Suggesting connection point designations intelligently	✓	✓	✓
Automatic Cross-Reference	✓	✓	✓
Searching and editing with two independent result lists	✓	✓	✓
Jumping from search results to the page	✓	✓	✓

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

	<b>Compact</b>	<b>Select</b>	<b>Professional</b>
Editing properties externally	✓	✓	✓
<b>API Extension</b>			
Programming interface .NET C#	-	-	Add-on
Programming interface .NET Visual Basic	-	-	Add-on
Programming interface COM C	-	-	Add-on
Programming interface COM C++	-	-	Add-on
Programming interface .NET Visual Basic	-	-	Add-on
<b>Change of Standard</b>			
Wizard for automatic adaptation of projects to standards	-	Add-on	Add-on
Exchanging forms, plot frames, symbols	-	Add-on	Add-on
Changing the project structure	-	Add-on	Add-on
Changing IEC to USA Ladder	-	Add-on	Add-on
<b>Multi Language Translation</b>			
Translation (Unicode)	-	Add-on	✓
Multiple use of translations	-	Add-on	✓
Integration of translation agencies	-	Add-on	✓
Automatic completion of words	-	Add-on	✓
Translate by word or sentence	-	Add-on	✓
<b>Assembly Reports</b>			
Automatic reports	✓	✓	✓
Online reports	✓	✓	✓
Freezing report pages	✓	✓	✓
Automatic table of contents	✓	✓	✓
Automatic title page / cover sheet	✓	✓	✓
Automatic structure identifier overview	✓	✓	✓
Automatic plot frame documentation	✓	✓	✓
Automatic form documentation	✓	✓	✓
Automatic symbol overview	✓	✓	✓
Automatic connection list	✓	✓	✓
Automatic terminal diagram	✓	✓	✓
Automatic terminal line-up diagram	✓	✓	✓

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

	<b>Compact</b>	<b>Select</b>	<b>Professional</b>
Automatic plug diagram	✓	✓	✓
Automatic cable diagram	✓	✓	✓
Automatic cable assignment diagram	✓	✓	✓
Automatic revision overview	✓	✓	✓
<b>Graphical Reports</b>			
Automatic terminal-connection diagram	-	-	✓
Automatic pin-connection diagram	-	-	✓
Automatic cable-connection diagram	-	-	✓
Automatic device connection diagram	-	-	✓
<b>Overview Reports</b>			
Automatic cable overview	-	✓	✓
Automatic plug overview	-	✓	✓
Automatic terminal strip overview	-	✓	✓
Automatic potential overview	-	✓	✓
<b>Article Reports</b>			
Automatic parts list	✓	✓	✓
Automatic summarized parts list	✓	✓	✓
Automatic device tag list	✓	✓	✓
<b>Administration</b>			
Number of macros (partial schematics)	Unlimited	Unlimited	Unlimited
User-structuring of macros	✓	✓	✓
Creation of your own form templates	✓	✓	✓
Creation of your own filter templates	✓	✓	✓
Creation of your own numbering schemes	✓	✓	✓
System behavior configurable	✓	✓	✓
User-defined properties	✓	✓	✓
Central management of symbols	✓	✓	✓
Central management of forms	✓	✓	✓
Central management of plot frames	✓	✓	✓
Central management of parts	✓	✓	✓

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

	<b>Compact</b>	<b>Select</b>	<b>Professional</b>
EPLAN Project Reference			
Project incoming check	-	-	Add-on
Project Options			
Managing plant options	-	-	Add-on
Revision Management			
Revision management – logging	-	Add-on	✓
Revision management – comparing	-	Add-on	✓
Conversion documents for revisions as list	-	Add-on	✓
Conversion documents for revisions as graphic	-	Add-on	✓
Write-protect revised schematics	-	Add-on	✓
User Rights Management			
User management	-	Add-on	Add-on
Identification of Windows user	-	Add-on	Add-on
Controlling the menu structure	-	Add-on	Add-on
EPLAN Mechatronic Integration			
EMI Cabling for Autodesk Inventor	-	-	Add-on
EPLAN Fluid			
Drawing fluid schematics for hydraulics, pneumatics, cooling, lubrication	-	Add-on	Add-on
Fluid power IEC / DIN symbol library	-	Add-on	Add-on
Link to the Festo product catalog	-	Add-on	Add-on
EPLAN Fluid Compact	Add-on	-	-
EPLAN PPE			
E-MSR plant planning	-	Add-on	Add-on
EPLAN Schematic Generator			
Automatic schematic generator	-	-	Add-on

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

# Licensing Overview

EPLAN Electric P8	Compact	Select	Professional
Schematic pages	40	Unlimited	Unlimited
Assembly Reports	X	X	X
Interfacing	X	X	X
Article Reports	X	X	X
Mounting Panel	Add-on	X	X
Overview Reports		X	X
Concurrent Engineering		X	X
Project Management		Add-on	X
PLC & Bus Extension		Add-on	X
Single Line		Add-on	X
Revision Management		Add-on	X
Multi Language Translation		Add-on	X
Graphical Reports			X

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See the Licensing Overview chapter.

EPLAN Electric P8	Compact	Select	Professional
Change of Standard		Add-on	Add-on
User Rights Management		Add-on	Add-on
API Extension			Add-on
EPLAN Schematic Generator			Add-on
EPLAN Project Reference			Add-on
Project Options			Add-on
EMI Cabling for Autodesk Inventor			Add-on
EPLAN Fluid (Add-on)		Add-on	Add-on
EPLAN Fluid Compact (Add-on)	Add-on		
EPLAN PPE (Add-on)		Add-on	Add-on

(Errors and changes reserved.)