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NORTH AMERICA
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Shaping the Future
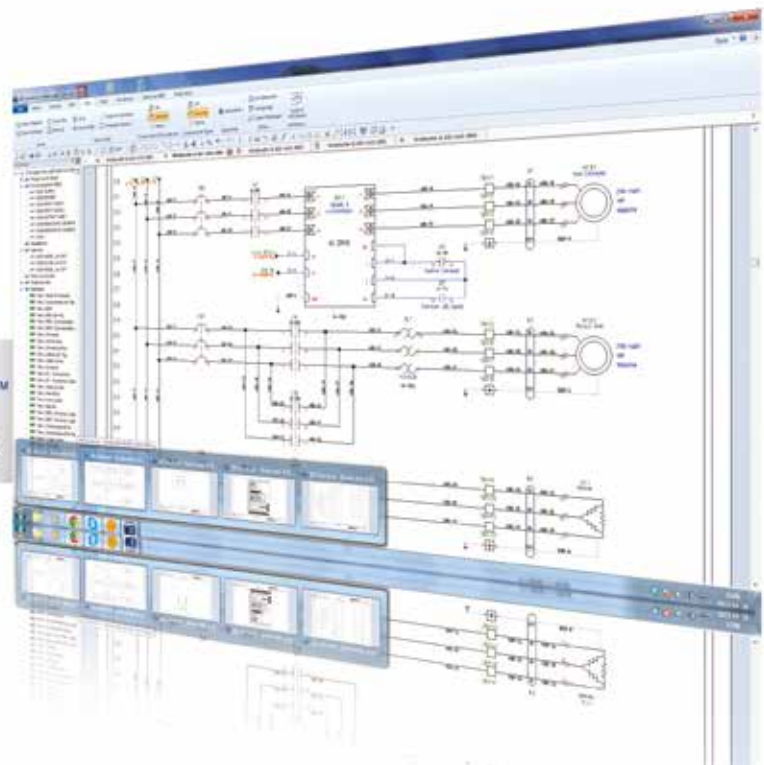of the **Electrical**
PLM and **CAD**

"Intuitive and Versatile
CAD Software for all your
Electrical Design needs"
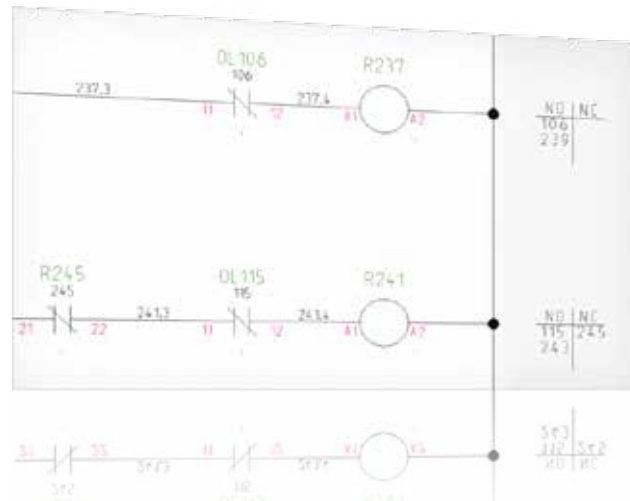
see *electrical*™

SEE Electrical - Basic
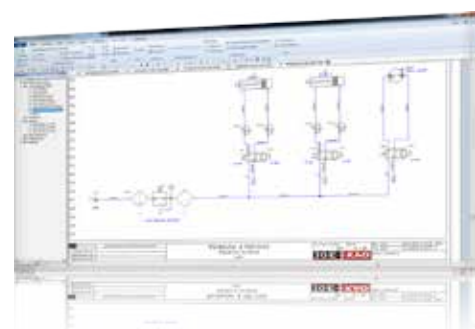## A cost-effective, entry-level solution

SEE Electrical - Basic is the ideal entry-level solution for all industries. Its numerous functions and attractive price make it an easily accessible choice for smaller businesses involved in any aspect of electrical engineering.

SEE Electrical offers real-time and automatic functions, which incorporate proven technology well suited to managing project information and multiple lists.

- As a real Windows application, SEE Electrical readily fits into all existing Windows environments.

- All functions and commands in SEE Electrical are easy to use and designed specifically for electrical engineering. Its intuitive interface means that users can be productive very quickly, with minimal need for training.

- As with most true Windows applications, SEE Electrical users can easily personalize their working environment.

- User-friendly drawing functions adapted to the needs of circuit diagram generation facilitate sche-matic entry. The rubber band function for example, allows the moving of components horizontally or vertically, while wires remain connected.

- An extensive array of symbols are readily locatable in the various available databases. In addition, custom symbols can be created should the user require something that is non-standard.

- Various standard and customizable component tagging options save time and reduce errors. All project specific settings are stored within the project data and are easily adjusted to the user's requirements.

- Graphical pages (including documents and components lists, cable, wire and terminal lists), can be rapidly and professionally produced.

- A diverse range of page templates is included, and the user can easily create their own if required.

- Several projects can be worked on simultaneously, allowing the user to copy existing parts or full sheets from one project to another.

- With the integrated Microsoft ActiveX® interface, documents from other Windows applications (including Microsoft Word®, Microsoft Excel®) can be embedded into the project structure.

- The ability to import and export in DWG, DXF, DXB and Enhanced Metafile Format facilitates the exchange of drawings with third parties.

- For professional looking documentation, pixel images such as BMP, JPEG and PCX files can be inserted into the title block of an electrical diagram.

- Real-time and automatic functions constantly verify project data, saving the user valuable time.

- Labels for terminals, wires and components can be produced by exporting in various supported printer formats, including Weidmüller and many others.

- Special functions for dimensioning and geo-metrical design are in-corporated, providing a basis for designing control cabinet and panel layouts.

- Hyperlinks can be used to link external documents or information from the Internet needed for extended documentation to geometric elements.

- A SEE Electrical Viewer is available for free. It allows anybody to conveniently view and print projects. The "redlining" functionality, available in the software and also in the Viewer, enables effective communication between design and manufacturing departments.

SEE Electrical - Standard
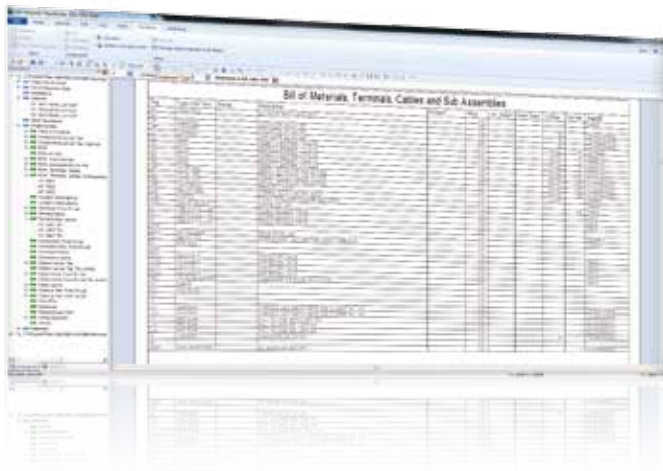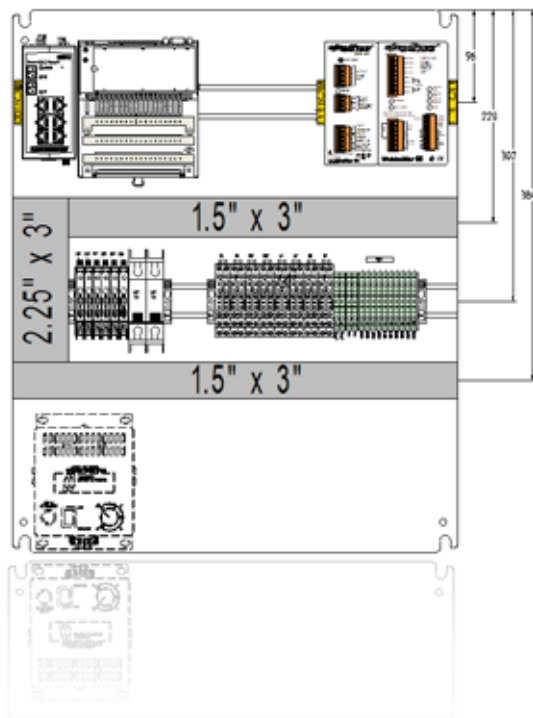## A feature-rich, high value option

SEE Electrical - Standard is the second level of SEE Electrical. An economic solution to deliver distinct advantages to those users who regularly produce and revise electrical documentation.

In addition to the characteristics of the Basic level, the Standard package offers a wider range of functions to assist in the rapid production and effective management of electrical diagrams.

- Fully integrated relay contact, component auxiliary contact, connector and cable manager, helping to avoid errors during the design stage. Administration of both main and additional component references allows all configurations to be checked and information to be retrieved in real-time.

- Creating detailed parts lists is simple, due to an integrated "type database", which allows for both manual entry and the importing of complete manufacturer's catalogues in spreadsheet format. Hyperlinks to external documents provided by manufacturers are supported by the types. Article information from type database can be displayed on the components.

- Wires can be automatically numbered in a variety of formats, and wire directions can be displayed and edited if required. If desired, a wiring list can be produced.

- Database editors allow component modifications in a list format, which are displayed immediately in the electrical diagram. In the list of products, the selection of specific manufacturer's components from the type database is easily achieved.

- Automated logical functions are available for PLCs, allowing real-time bi-directional exchange of PLC operands between racks and I/O signals.

- Project development based on a function and localisation hierarchy system may be employed, including support for predefined and allocated functions and locations.

- Page gap can be inserted or removed. By doing this, component names that are related to the page number can be updated automatically.

SEE Electrical is of particular **benefit** to manufacturers of **any type** of electrical machinery and cabinets.

SEE Electrical - Advanced
For the highest level of electrical design

SEE Electrical - Advanced is the final level of SEE Electrical. It offers a high-end, professional system for electrical diagram design that substantially reduces development times.

In addition to all the capabilities of the Basic and Standard levels, the Advanced package equips the user with further powerful functions. These have been specifically designed to enable users to rapidly and efficiently develop and manage complex electrical projects.

- Functions like "Autoconnect" and "Orthogonal Wiring" give even more comfort in drawing.

- The effort necessary to carry out changes is clearly reduced: single pages can be copied or moved by "drag and drop". Multiple pages can also be copied in one step.

- By double-clicking on any cross-reference, the user can navigate through a complex project quickly and effortlessly.

- Using a database driven translation tool, entire projects can be converted into different languages at the click of a mouse, whilst texts can also be translated individually if required. Additionally, the selection of a "codepage" permits the display of Western European and e.g. Cyrillic or Greek letters in a diagram at the same time. While typing the text, access to the translation database is enabled and therefore pre-stored texts can be overtaken by double clicking.

- The automatic numbering mode for PLC operands can be predefined (hexadecimal, decimal, or octal), and PLC assignment lists can be imported in Microsoft Excel® format.

- A useful function can change all the page templates for an entire project or for some pages only, allowing for the customisation of project templates for different customers.

- Database editors incorporate a wide range of sorting and filtering functions therefore reducing the time spent on changes. For example they enable terminal blocks to be automatically renumbered to comply with new or revised definitions.

- The smart functionality "Navigation from database list to drawing" helps find objects quicker and is really easy to use.

- The functionality to manage parts which do not need to be in drawings by list (spare terminals, mounting material …)
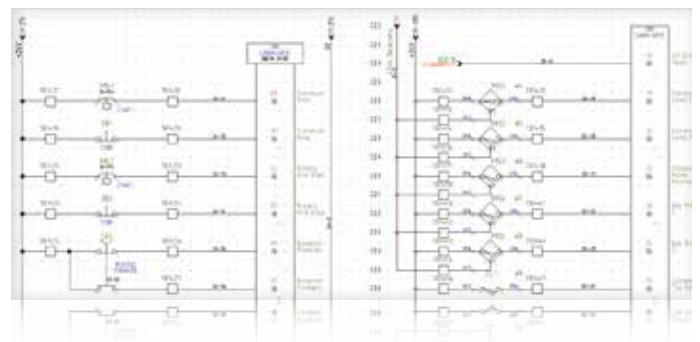
allows either:
- To predefine material and to position it later in the circuit diagram by using a pick list.
- Or to help manage material that does not appear in a diagram but is necessary for the part list. It is also possible to read in an Excel file that contains the additional material, for example if this information is already prepared in a PDM system. Also Spare terminals, end- or separation plates can be managed in the same way.

- A custom graphical list generator allows users to create their own bespoke project reports. This can either be achieved with the built-in interface, or by the use of SQL statements.

- Merging projects with different function/localisation allows multiple users to work on specific areas of the same project.

- If several similar projects / drawings need to be produced, SEE Electrical Advanced offers a powerful 'auto-diagramming' function. This tool is able to generate entire projects or groups of symbols from Microsoft Excel® and Access® files.

- The sorting order of different kinds of documents can be adapted, so that each user can readily print exactly what they need, in the order and size they require.

With the «List & Labelling» tool in the integrated database, SEE Electrical offers powerful and fully automated generation of labels and tags.
All popular worldwide labelling formats, including Avery, Zweckform, Herlitz and Leitz are fully integrated into the system.

Additional modules

SEE Electrical – Cabinet Layout
Simple control cabinet and panel design

It allows the professional design of control cabinets and panels within SEE Electrical by the automatic linking of symbols in an electrical schematic, to those placed in a cabinet. Cabinet components are inserted via a "pick list", which contains all of the parts that are used in a project.
- Elements inserted into cabinets are correctly scaled and obtained from the "type database", either from the length and width of the component, or from imported or user-defined symbol.
- All components placed will be available in the circuit diagram "pick list".
- A variety of measuring, dimensioning and other specialized CAD functions assist in the production of professional looking documents.
- DIN rails and cable/wire channels can be inserted as required, facilitating the construction of organized and logical cabinets.
- Terminal strips used in cabinets may also be viewed in the SEE Electrical graphical terminal matrix.

Microsoft Excel Export/Import

More efficient data exchange : export of several database lists in one step.
Save data entry time : changes can be made in MS Excel quicker because the content of important lists (document list, product list, terminal list, wire list, cable list, PLC list,…) can be reimported to the SEE Electrical workspace it originated from. Doing this the module helps to follow the workflow a lot of companies are getting used to electrical data have to be changed by people not using the Electrical CAD system at all.

3D Cabinet Layout - a plugin for SolidWorks

Save design time: it connects full 3D functionality to user-friendly **SEE Electrical** designing appication.
-        Components from the SEE Electrical workspace rotate and attach automatically to the rails.
-        Automatic creation of a component if it is not present in SolidWorks (automatic analysis of the electrical diagram).
-        Tagging can be changed in SolidWorks and automatically synchronized in the electrical design. Through the linking to **SEE Electrical** changes are automatically made in the circuit diagrams.
Components deleted in circuit diagrams are marked in the cabinet and can therefore easily be found.
Avoid panel mounting fitting errors: Using the advantages of both Electrical and Mechanical CAD packages, the interface guarantees that all equipment used in the electrical diagrams are found in the cabinet and that no conflict will appear at the mounting stage.

Smart PDF Generator

This module generates an "intelligent" PDF which allows navigating in a given project with the help of cross references. It also generates an overview of the project tree and of the components. If hyperlinks are defined in a workspace, they are available in PDF-files generated with this module too. The module allows users to generate PDF-documents showing the workspace pages in multiple languages; if the project has been translated before (translation functionality requires Advanced level).

Environment Synchronizer

Companies using multiple licences of SEE Electrical have a challenge to keep all installations up to date especially if users often take their laptop to the field and because of this disconnect form local network. The «Environment Synchronizer» module allows the administrator to prepare files that changed on the server. As soon as a user returns to the company and connects to the intranet SEE Electrical is automatically updated at first start. No user action is necessary.

IEEE Circuit Diagrams

The IEEE Circuit Diagram module allows the generation of documentation compliant with the standards for the US, Canadian and corresponding markets.

Functionality offered by SEE Electrical	Basic	Standard	Advanced
Project manager	•	•	•
Real-time lists for: components, terminals, parts, contacts, cables, cable cores, wires, PLC I/Os, documents	•	•	•
Filtering/sorting into lists	•	•	•
Multiple symbol libraries (including IEC) with graphical overview, grouping and searching	•	•	•
Creation of custom symbols and drawing macros	•	•	•
Real-time component numbering and cross referencing	•	•	•
Real-time connection and open contact check-up	•	•	•
Graphical cable definition - including user defined symbols	•	•	•
Custom project template creation	•	•	•
Bi-directional compatibility with other CAD systems (DWG, DXF and DXB)	•	•	•
Microsoft ActiveX® interface	•	•	•
Importing of images (JPG, BMP, PCX...)	•	•	•
Copying of symbol groups between projects	•	•	•
Working on multiple projects simultaneously	•	•	•
Customizable working environment	•	•	•
Standard CAD drawing facilities and dimensioning capabilities	•	•	•
Support for hyperlinks on graphics	•	•	•
Redlining functionality	•	•	•
512 available layers	•	•	•
Auto-backup feature	•	•	•
Export in Enhanced Metafile Format and XML	•	•	•
Export formats for Weidmüller and other label printers	•	•	•
Integrated 'type' database		•	•
Import of manufacturer's data into type database in Microsoft Excel® format		•	•
Display type information on components		•	•
Support for finding a type with necessary number of contacts for coils and components with auxiliary contacts		•	•
Contact mirror display for coils		•	•
Automatic contact numbering of coils-and components with auxiliary contacts Support of automatic renumbering the contacts		•	•
Checking for overloaded contacts in coils-and components with auxiliary contacts		•	•
Cable management (cable type database)		•	•
Handling of deck terminals, Management of connectors		•	•
PLC I/O manager		•	•
Function/location management + graphical function/Location boxes		•	•
Graphical signal management with four predefined signal properties /wire numbering in several formats		•	•
Wire directions display and editing		•	•
User definable numbering method for all elements and references		•	•
Find and replace text throughout entire project		•	•
Insertion of pages and deletion of pages gaps		•	•
Duplicate component name check		•	•
Database editors (single entry editing)		•	•
Graphical terminal plan with automatic detection of up to ten bridge types		•	•
Graphical cable plan + Wiring list		•	•
Part list sorted by function/location		•	•
Autoconnect			•
Draw orthogonal x-pole wires			•
Cross-reference navigator (go to) with marking function (come from)			•
Navigation from Database list to drawings			•
Database manager for functions/locations/products /products (aspects) including ability to manage nested aspects			•
PLC operands numbered automatically in several available formats + Importing of PLC assignment lists in Microsoft Excel® format			•
Generate cable names automatically			•
Configure project tree allowing for custom graphical and database lists			•
User defined lists and components			•
Configuration of multicores			•
Freely configurable signal properties			•
Language translation of complete projects/ Access to the texts available in the translation database			•
Changing of page templates for an entire project or a part of the project			•
Copy multiple pages and all sheets of a function in a project to another one			•
Advanced database editors (editing of several entries at once)			•
Renumbering of entire terminal strips			•
Insert components/terminals not in drawing by list			•
Terminal plan with graphics and terminal row picture plan			•
Cable terminal row plan			•
Connector matrix and plan			•
Product assembly list + Compressed BOM			•
Sorting of cables and their cores according to function/location			•
Find and replace symbols throughout current page or entire project			•
List and label editor			•
DWG/DXF/DXB multi-import and SVG/DWF multi-export			•