

RUPLAN

DESCRIPTION OF FUNCTIONS



**RUPLAN – Functionality, flexibility and
integration in setting up electrical
engineering documents**

Let's make engineering easy!

 **AUCOTEC**

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1 Overview

The RUPLAN CAE system enables the economical creation and comfortable editing of circuit diagrams and schematic drawings. It has been developed for use in the entire range of industrial applications and offers optimum support in all phases of the documentation of electrical engineering systems.

RUPLAN offers special branch solutions for the specific needs of certain industrial sectors such as power generation, water management or vehicle cabling.

RUPLAN shortens the throughput time for projects, increases the productivity of the employees and improves the quality of the documentation. Due to the user-friendly, easy-to-learn handling, the acceptance on the part of the users is very high. RUPLAN thus pays off in a very short period of time.

X RUPLAN is fast: The high functionality saves routine jobs that in conventional design are time-consuming and error-prone.

X RUPLAN is flexible: The system can be used in various fields of application and can be adjusted to any company-specific requirements.

X RUPLAN integrates: With its predefined interfaces, RUPLAN can easily be incorporated into the company's existing IT structure.

X RUPLAN is easy to understand: The easy handling enables even new users and those who work only sporadically with the system to use it extremely economically.

X RUPLAN can do more: RUPLAN enters cross-references into the diagrams online already during diagram creation, which are then used together with other information to generate lists in the course of evaluation runs. Derived documents such as parts lists, terminal diagrams, cable lists etc. emerge automatically.

RUPLAN supports its users comprehensively, from graphics editing to the generation of the complete plant documentation. The entire work flow is taken into account by the system during all projecting phases.

Optimum profitability is achieved where the creation of a plant documentation can be automated due to a high degree of standardization. The RUPLAN programming environment AWT and its integration interface offer ideal prerequisites for this purpose.

RUPLAN incorporates all of the currently valid standards for electrics documentation. If required, RUPLAN can also allow for the older, partly still customary standards such as DIN 40719 or 40900, however.

Our corporate vision can be seen again and again in RUPLAN - We support you in reaching your goals in an efficient and uncomplicated way.

Let's make engineering easy!

2 User Interface

The user interface of the current version of RUPLAN has been redesigned according to the design specifications of modern Windows applications. Thus RUPLAN becomes intuitively usable and permits even the occasional user and beginner to become productive in a short time.

☑ Windows User interface

The RUPLAN user interface is basically divided into the following elements:

✗ The **title** of the RUPLAN window contains the program name and the version as well as the project or the name of the drawing.

✗ The **menu bar** at the top contains the pull-down menus, which open downward by clicking on them and offer the possible actions as a function of the respective editing level. The menu bar is designed differently depending on whether one edits symbols, devices or projects alphanumerically or is in graphic drawing editing.

✗ RUPLAN offers graphic icons for almost every action, which can be put together to form user-specified **icon bars**. These icons permit very **fast activation** of the desired functionality by simply clicking on them. The user can place the icon bars at arbitrarily chosen positions. When approaching the icons with the cross-hair pointer, explanatory texts are displayed as tool tips at the icon itself and more comprehensively in the status line of the RUPLAN window. For actions defined by the user himself there is a stock of 99 icons in graphics editing that can be assigned as needed. Additional user-definable icons are available in the RUPLAN catalogue and on the address level of a project.

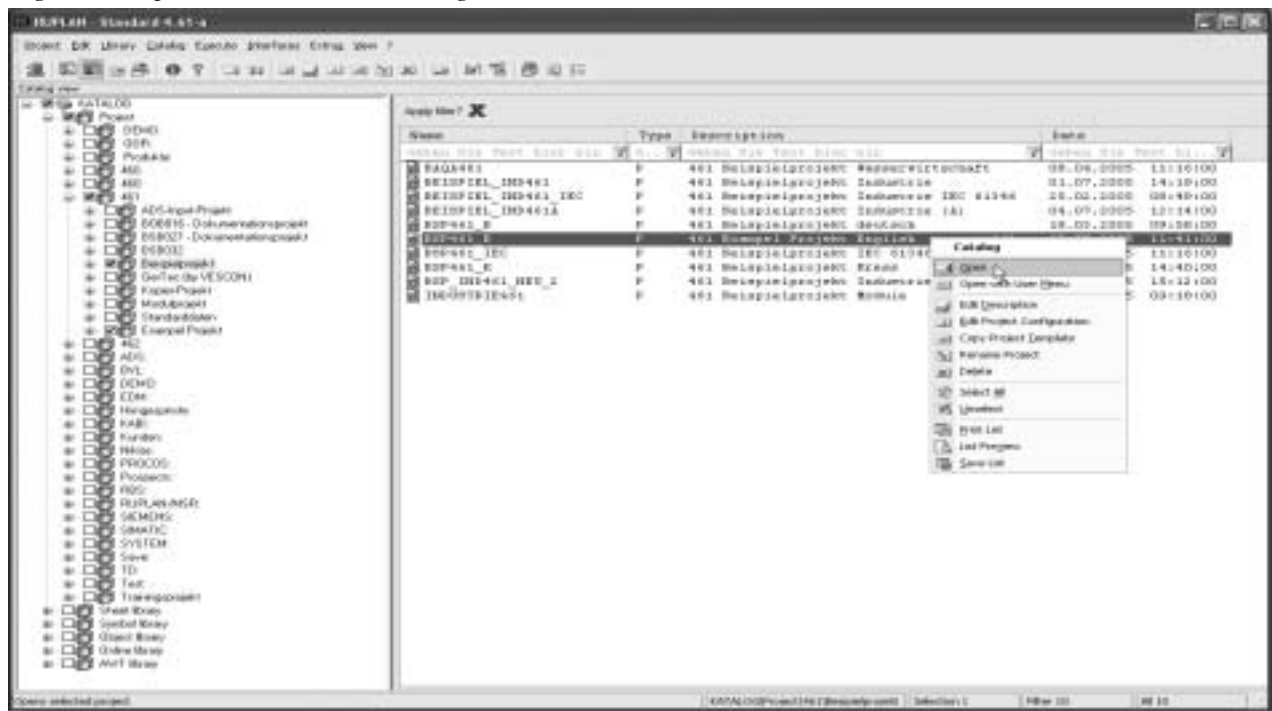
✗ The projects and RUPLAN databases can be displayed in two alternative views in the form of a **tree**. The method of operation is similar to that of the Windows Explorer, however with an expanded functionality. The left side of the window displays the tree, the right one contains a list of the respective selected elements in the selected directories. The form shown by default permits the selection of **several tree branches at once**. All elements thus selected are shown in a list on the right side of the window. By means of a context menu (right mouse button), the actions appropriate for these elements can be displayed and activated. A double click on the selected element triggers the action most often used in this context, thus e.g. graphics editing for circuit diagram sheets. Upon a simple mouse click, RUPLAN displays the selected element graphically in a preview window. Copying, cutting and pasting of elements (sheets, symbols, objects, AWT programs) evidently also functions with the common shortcuts (Ctrl+C, Ctrl+X, Ctrl+V), but likewise via **drag & drop**.

The alternative form, a simple tree with integrated columns, permits easy and **clear navigation**.

The list of selected elements can be restricted, sorted or modified with respect to the order and number of columns to be displayed by means of **filters**.

Structuring in **several levels** is possible. In this case the project names or designations or the function designations are used alternatively. Thus there is an optimum tool for structuring projects e.g. on the basis of contracts, customers or plants.

Figure 1: Representation in the catalogue



The drawings shown in the list are characterized in the sheet database by a status symbol. Thus **one glance** shows whether

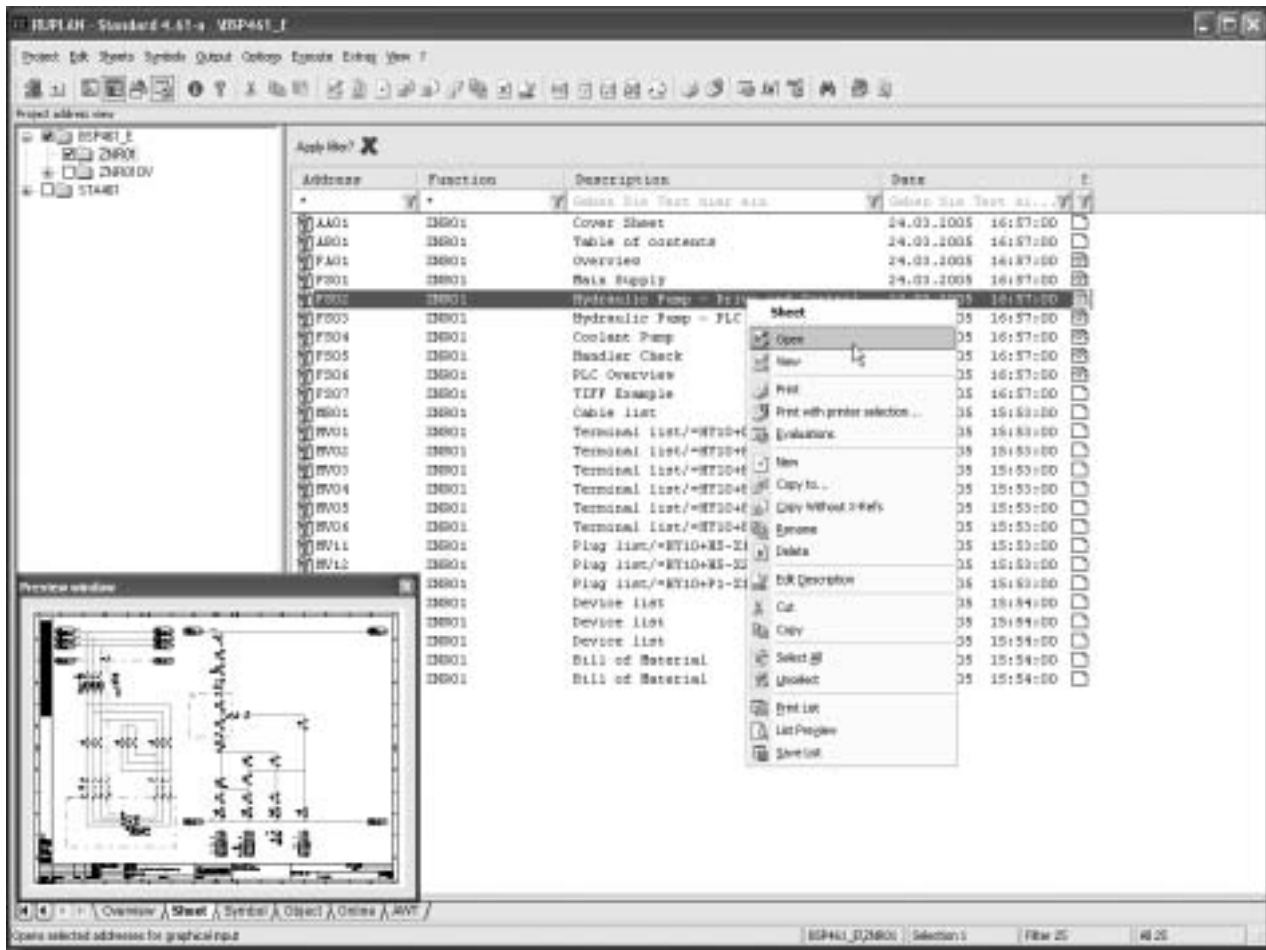
- the sheet has been changed since the last revision
- the sheet contains redlining entries
- the sheet contains items managed online
- the sheet is write-protected

Each sheet can be assigned to a document type (e.g. circuit diagram, wiring document, layout diagram, ...). The document type is shown in the address display.

X The **information window**, which can be called in the lower section of the screen, is used to log the current processes. **Warnings and errors** are also displayed here.

X In addition to the information window, one can also display a **preview window** for drawings, symbols and objects anywhere on the screen.

Figure 2: Representation of a sheet database



▣ Graphics Editing

During graphic editing of diagrams, symbols and devices, menus are offered by means of which the user can activate all editing actions.

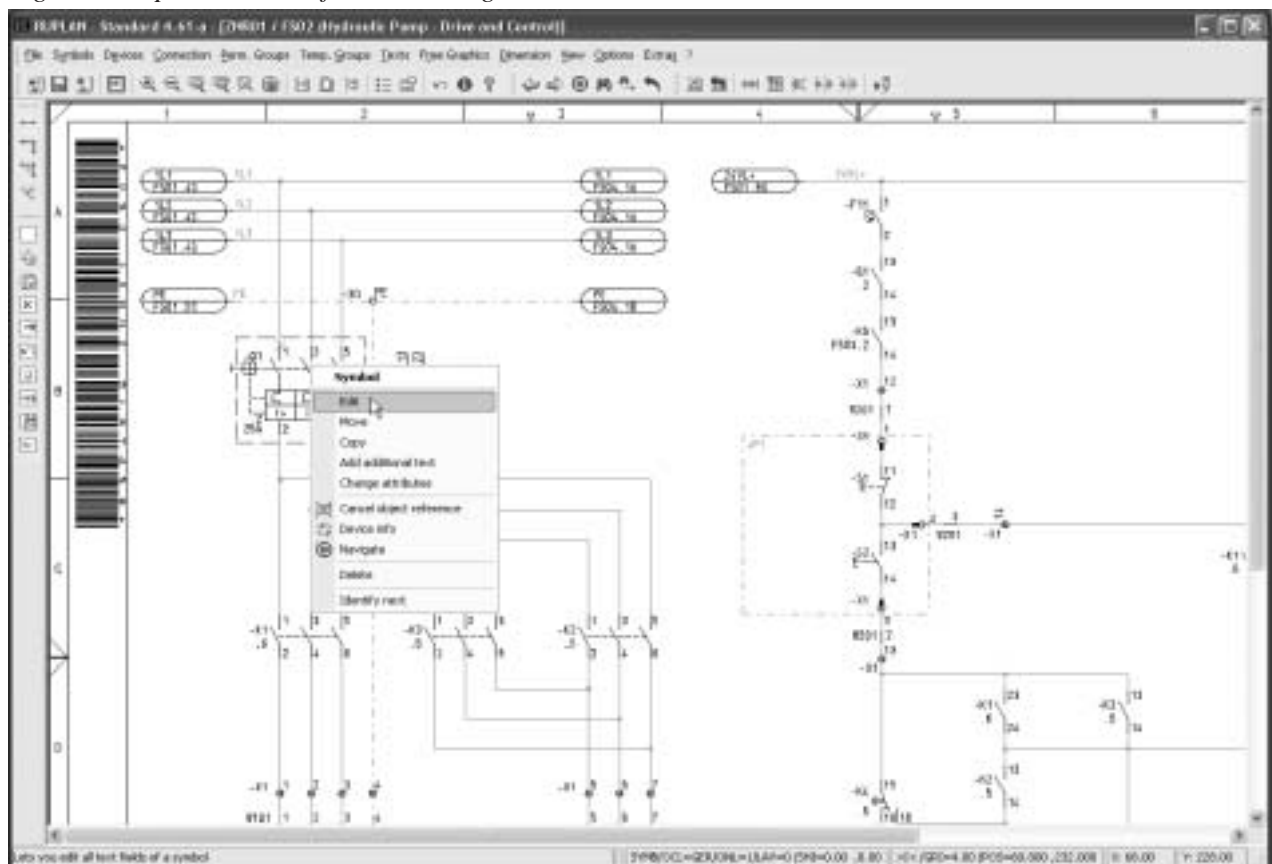
RUPLAN offers **icon bars** that contain the most frequently used actions. The user can modify the icon bars, replace them with other bars or supplement them by new bars. Moreover the information bar can be shown or hidden.

The area for graphic editing is used instead of the already mentioned tree display.

The right mouse button can trigger **context sensitive** actions. If e.g. the cross-hair pointer is placed above a symbol when the right mouse button is actuated, a RUPLAN context menu offers the actions that are possible with this symbol, similarly for connections, free graphics or texts. If the cross-hair pointer is positioned at an empty position, general actions such as the selection of a window section are offered. The context menu offers actions that can be supplemented for or adjusted to special tasks via system customizing.

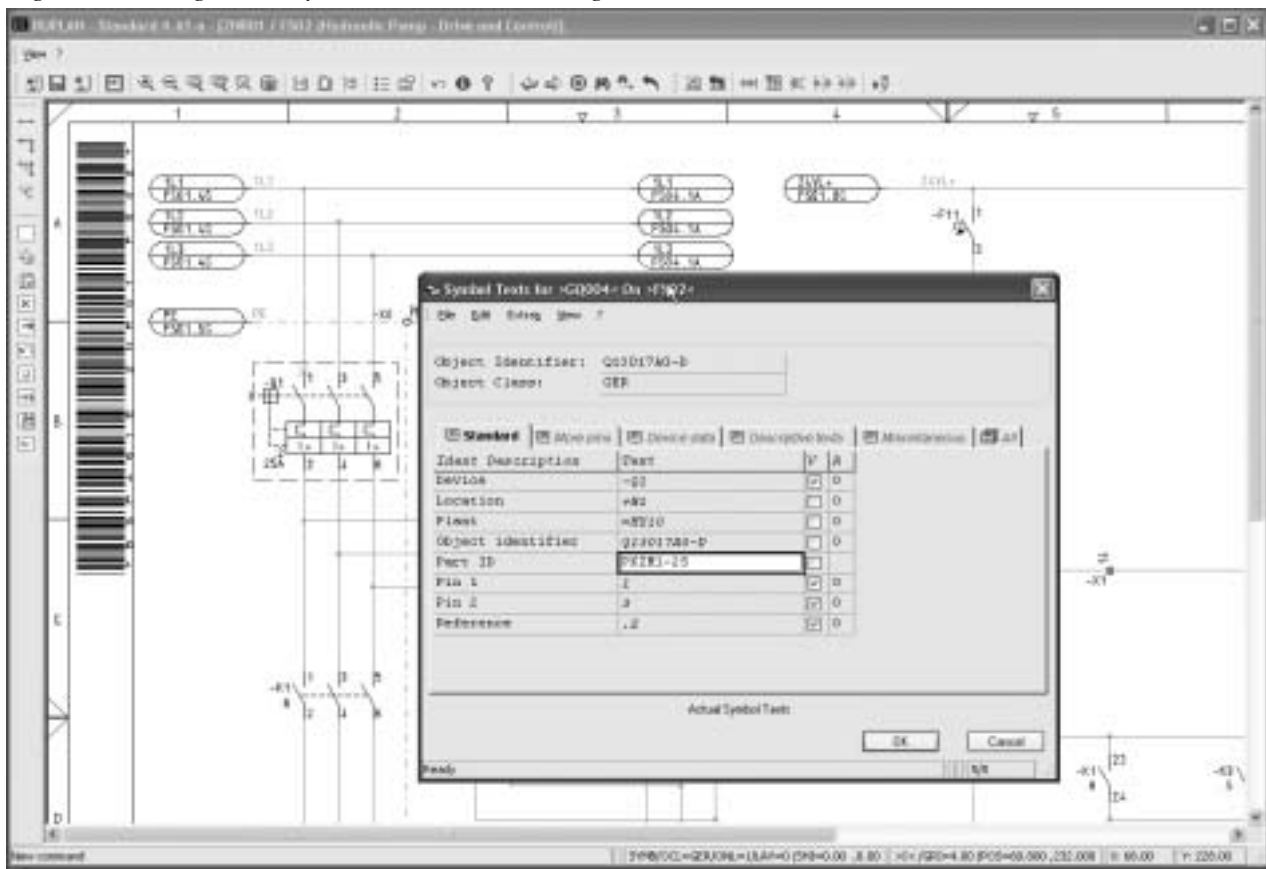
The **drag & drop** function for copying and moving is of course also available for graphic editing.

Figure 3: Representation of a circuit diagram



Upon clicking on the action "Mark" in the context menu "Symbols", the mask for adding text is displayed.

Figure 4: Adding text to symbols in the circuit diagram



The mouse wheel can be used to **continuously zoom into** the drawing. Alternatively the user can call a zoom window by specifying corners.

On the right margin of the screen, additional windows can be activated where the user can store **actions of his own**, such as frequently used symbols or certain command sequences adapted to his application. The user can create these menus graphically and manage them using options offered by RUPLAN. Switching between these menus is effected via mouse click.

▣ Action Codes

For activating actions in the graphic mode, RUPLAN alternatively offers the user action codes as inputs by means of which he can quickly **create his drawing**. A time-consuming "seek-and-yea-shall-find action" through menu hierarchies becomes superfluous.

To further increase the efficiency of his work, the user can assign special **action sequences** to keys not required for graphic inputs. Thus e.g. symbols can be identified, placed anew and then labelled with a **single keystroke**.

▣ Online Help

The online help displays the section of the user manual corresponding to the respective **working status**. In addition, supplementary help information can be invoked via an index or a search term.

3 Data Organization

Management

RUPLAN **manages its own** data stock. The data created (e.g. diagrams, symbols, devices, on-line data records and evaluation command sequences) are stored in databases.

RUPLAN offers the possibility to record all databases that are created in a **catalogue**. In this way the user can gain an overview of the projects and databases accessed and select from them. For display in the tree, the catalogue can be structured arbitrarily using the project designation.

Protective Equipment

RUPLAN is accessed via a password. A different access authorization can be assigned for each password. Moreover, every user can protect **every element created** (diagrams, symbols, devices and evaluation command sequences) in the databases using a **password of his own**.

Project Organization

RUPLAN supports the **project-oriented** method of operation. Within the framework of the project, RUPLAN puts together the databases desired or required for the task. In this way the user finds an **appropriate data environment** upon opening his project. The project name may be 60 characters long. **The Various Databases:**

Sheet database

The sheet database is used to store the **created diagrams**. The integration of individual sheets into a total diagram is effected via a common drawing number (function). The size of the sheet databases is limited only by the hard disk space.

Evaluations can alternatively be carried out over the entire sheet database, one or several drawings or individual sheets.

Symbol Database

The symbol databases are used to store **symbols and complete diagram parts**. Symbol databases can be created and managed **independent of a project**. The total number and the size of the symbol databases is not limited, and the user can work with several symbol databases **simultaneously**.

For RUPLAN there is the Basis-Symbol-Bibliothek (BSB, Basic Symbol Library). It is based on the **DKE** (Deutsche Kommission für Elektrotechnik) **master file** and contains more than 2,000 available symbols according to DIN EN 60617 (new standard) or DIN 40900 (old standard).

The symbol databases assigned during drawing editing determine which set of symbols is used to create the diagrams. By assigning a database with symbols from a **different standard**, it is possible to output diagrams that were created with symbols according to the German standard with a **different set of symbols** (e.g. **for export**) without interactive modification of the drawings.

Device Database

RUPLAN manages **all partial representations of an item** (e.g. for a contactor coil, contacts, cabinet assembly symbol, but also complex components such as PLC components or bus components) at a central location, and that also on a **superordinate** (higher than the project) level. Thus it is possible to carry out online tests already in the course of interactive diagram creation. Moreover the user gains an immediate survey of the item and can distinguish at once which components have or have not already been allocated.

In addition to the functional components of a device, **technical and commercial data** concerning the device is also managed. The GerTec system offers a supplementary module for RUPLAN that enables comfortable maintenance of these material master data (see 12.6).

RUPLAN offers **flexible interfaces** for establishing links to existing material master data management systems. Thus there is e.g. an online coupling to SAP.

Online Database

For online checks during editing, RUPLAN uses the online database. Since the online database is multi-user compatible, **several users at once** may work in the same project.

AWT Databases

On the one hand the AWT databases are used to store the command sequences for automatic evaluations that create the **standard lists**. On the other hand the RUPLAN user can create and store command sequences for **project-specific** or **user-specific** evaluations, which create special lists, transfer data to diagrams and can do many other things.

Standard Text File

The standard text files are used to enter frequently used texts. A file is created for each **foreign language desired**. For Russian, Cyrillic characters are available.

The assignment of the text files during the display of the diagram decides which language is used for the legends. Since three files may be accessed at the same time, **multilingual legends** are possible.

4 Graphics

Symbols, diagrams and devices can be created **interactively** on the graphic screen. The actions of **free graphics** are available for all element types. The creation of symbols is possible in the symbol database or during drawing editing. In drawing editing there are **additional actions** that are adapted to the diagram logic.

Free Graphics

All of the elements of free graphics common in CAD systems are available in RUPLAN. Free texts can of course also be entered. All elements can also be **altered retrospectively** with respect to their attributes.

Grid

For graphics editing it is helpful to work with a preset grid. In RUPLAN the basic grid can be **set freely** anytime and can likewise be **switched off** if desired. The predefined grid can be displayed on the screen at the window margin or as a dot matrix. Graphic elements are always placed on the dot closest to the cross-hair pointer. The placement can be effected via the mouse or the arrow keys.

Different representations are possible for displaying the current mouse pointer positions (cross-hair pointer, target,...). The mouse pointer is positioned via the mouse or the arrow keys. With the arrow keys, the user can jump to the **nearest matrix dot** or the nearest **logical connection option**.

Zoom

The editing view can be enlarged or reduced in arbitrary sections. The zoom factor can be set **continuously** via the mouse wheel.

Image Layers

Graphic image elements can be placed in different image layers. A maximum of **100 layers** is available: During graphics editing the RUPLAN user can select the layers active for entries and on-screen representation. The visible image layers can be **set separately** for outputting.

Colours

Basically, each element can contain a colour. These setting are taken into account when new elements are entered in the diagram and are also recorded in the data structure. The default setting can be changed during graphics editing in order e.g. to **document different revision states**. The elements entered beforehand retain their former colours. Symbols whose graphics were assigned different colours can be placed uncoloured in the diagram, with a **common symbol colour**.

Fonts

The RUPLAN standard comprises several fonts, among others a Cyrillic and a Greek font. In addition, the user can **create his own fonts** by changing the desired characters of an existing font or by designing new ones as with symbols. A font for bar code 39 is also available.

5 Graphic Editing of Symbols and Diagrams

▣ Symbol Creation

Symbols are created and stored under freely definable symbol names. During creation, reference graphs can be underlaid as design aids.

□ Symbol Structure

A symbol consists of graphic elements such as lines, circles, arcs, texts firmly assigned to the symbol and the logic elements "connector point" and "text field". Each symbol is assigned a reference point that coincides with the cross-hair pointer when it is placed. Each graphic symbol can be assigned a **logic symbol**. In the logic symbol, the logic elements are defined depending on the input angle of the symbol (0, 90, 180, 270 degrees). Thus it is ensured that for each input angle of a symbol an **optimum position** of the texts relative to the symbol can be achieved.

□ Symbol Types

RUPLAN distinguishes between different symbol types for circuit diagram symbols, additional graphics, writing fields etc. This distinction enables **optimum access** for evaluation routines.

▣ Diagram Creation

Editing of a diagram is done **sheet by sheet**. The unambiguous identification of the individual sheets is effected via the function (e.g. drawing number) and the sheet identifier (e.g. sheet number). By means of the **sheet selection menu**, one or several existing sheets can be called for editing, or a new sheet can be created. Within the sheets, it is possible to maneuver forward and backward.

With the item selection the user jumps directly to the diagram where this item is displayed. If the item is represented in a distributed fashion, it is also possible, by means of the cross-references in the sheet, to **jump** to other components of the same item **in other sheets**. This is also possible for potentials. Here the jump is effected via the cross-reference symbols of the potentials.

Partial functions of a device not yet assigned (e.g. free contacts, card connectors) can be placed from the **item tree**. The latter shows all free partial functions and displays the pertinent symbols in a preview window.

□ Sheet Information

During the creation of a sheet, graphic information concerning format, path distribution and scale are predefined, which are important e.g. for evaluations and output.

□ Connections

In contrast to lines in free graphics, connections are entered in the data structure as **logically connectable elements**.

They can be entered as polylines in one piece. If a connection ends on another one or on a symbol connection point, the elements are logically linked to each other.

RUPLAN can be set such that upon moving a symbol, the connections attached to it are moved together with the symbol (**rubberbanding**). Subsequently, the slanting connections thus formed are automatically adjusted rectangularly. Connections can be assigned to potential designations and connectors, but also to cable and wiring information. Potentials that are continued on other sheets are defined as coherent network via potential cross-references. Direct short-circuits between designated potentials are recognized and signalled.

Wiring information may be introduced into the circuit diagrams by using the element "wire". Thus the actual wiring sequence can be unambiguously documented.

Working with Symbols

Symbols stored in one of the registered symbol databases are selected via graphic selection menus, entry of the name or identification of a symbol already present in the diagram.

Symbols are **automatically** inserted **optimally** into existing connections.

During placement, the symbols can be **rotated by any angle** (preferred values are 0, 90, 180 and 270 degrees) and thus placed in the diagram. Multiple placement is possible. Already placed symbols can be deleted, moved or rotated. All symbol attributes can be changed.

For use in special applications or in a foreign-language environment, the names of the symbol texts can be displayed in a **user-definable** way.

In addition to the texts defined during symbol creation, each symbol can be assigned further **text fields** that can be **placed anywhere** on the sheet. It is possible to enter additional connector points. All text fields can be **moved** on the sheet **independent** of each other.

Temporary Groups

Groups can be defined by enclosing the desired elements in a group frame. Groups enable **common manipulations** (duplicating, moving, deleting, rotating, adding text, changing graphic attributes and storing as partial circuit).

Permanent Groups

Elements that are combined to a group are enclosed in a polygon and are defined as permanent group. The RUPLAN **user can choose** whether texts allocated to the polygon are to be valid for all symbols in the group or only for those that possess a text field having the same name. In this way it is e.g. possible to define item designations for a black box.

Partial Circuits

Parts of a diagram can be stored in the symbol database under a name specified by the user and **further used in other diagrams**.

Dimensioning

Graphics can be provided with dimension lines and dimension numbers using distance, angle and radius dimensioning. RUPLAN **automatically** determines the **dimension number** and enters it. Any scale specified for this sheet is taken into account.

Colour, line type, layer etc. of the dimensioning elements can be preset. It can be specified whether the dimension lines are to be terminated by an arrowhead or a slash.

Standard Texts

Standard texts are used for entering multilingual legends for diagrams or easy input of frequently used texts. Up to **three languages** can be shown **simultaneously**.

Standard text files may have **any size**. RUPLAN is delivered with an extensive standard text file in three languages.

Checks

During graphics editing, the user can manipulate various construction conditions, called checks. These construction conditions can be activated individually, among other things:

- ✗ Symbol without connector permitted
- ✗ Connectors in grid
- ✗ Overlapping symbol positions permitted (graphic or logic)
- ✗ Symbol at cross-hairs cursor
- ✗ Group formation with restrictions
- ✗ Only horizontal and vertical connections
- ✗ Network text unambiguousness (short-circuit)

Plotting

The current screen content can be plotted during graphic drawing editing (including image sections, hardcopy).

Navigation

It is possible to **jump to other sheets** during graphic editing of a sheet. This can e.g. be effected via potential cross references, in which case a jump to another sheet for continuing the potential is carried out, or via the identification of an item, in which case branching to another partial function of a separately displayed device is carried out.

By means of jump mark symbols, any **navigation targets** can be entered in order to e.g. navigate from a general diagram to detailed diagrams.

Alphanumeric Diagram Editing

In addition to interactive drawing editing, drawings can be edited alphanumerically without graphic display build-up.

6 Device Organization

Device Classes

In plant engineering, different **identifying terms** are used for the different kinds of items (e.g. devices, terminals, cables). In order to be able to define these distinctions, the user can specify different device classes. By default, there is one predefined class each for devices, nested devices, terminal strips, cables, potentials as well as technical and commercial data. Thus RUPLAN is capable of correctly managing and handling even **more complex device configurations** such as multiple representation of terminals, initiator terminals, bus configurations, PLC configurations and the like.

Device Data

The data of the devices used is **combined** in the device databases. Technical and commercial as well as RUPLAN-specific data can be defined for each device. All device data is specified by symbol text assignments. Devices can be edited alphanumerically or graphically.

Moreover it is possible to **define** device **variants**. For example, it is possible to define several calotte colours, sockets and voltage values for the device "signal light", yet the device is addressed via one term only (device type) in all cases. The ultimately valid variant is specified by captioning in the diagram. Moreover, devices can be used that are composed of several components.

7 Checks and Automatic Procedures for Diagram Creation

☑ Device Selection

If during diagram creation a device from the device database is to be assigned to an item, the user is **supported by the system**. For selecting the appropriate device, the user can purposively search for and select components in the allocated databases using definable search terms. It is also possible to select a device according to technical criteria without first placing a symbol. RUPLAN then automatically offers an appropriate symbol.

The items are **clearly represented** in the form of an item tree. Here a complete survey of the already used and the still available partial functions of the device is given.

☑ Interactive Device Check

Already during diagram creation, the devices used for the items can be checked anytime over several sheets.

Following assignment of a device designation, among other things the following checks are then carried out online:

- ✗ Symbol permissible for the device type
- ✗ Connector designation already present
- ✗ Device type non-existent
- ✗ Connector designations compatible with device definition
- ✗ An item has different device types

The user can inform himself anytime concerning all parts of an item distributed over several sheets.

☑ Device Cross-References

Already during diagram creation, RUPLAN takes the **connector designations** of the symbols from the device definition and transfers them to the circuit diagram. For distributed devices (e.g. relays and contactors) the **contact arrangement** defined for the device type in the device file is displayed at the basic device (coil) in a position specified by a placeholder. RUPLAN enters the reference back to the corresponding basic device at each contact. Cross-references can also be entered for devices that are not contact arrangement. The cross-reference is then entered at the elements of the device.

The structure of the cross-reference texts can be specified by the user, with different specifications being possible for each device class as described in chapter 6.

Specified texts that were entered for a partial function of a device displayed in a distributed fashion are automatically adopted by RUPLAN for all other partial functions.

☑ Short-Circuit Check

When entering connections or deleting symbols, there may arise non-permissible linkages of different potentials or wiring properties. The user can make sure that such connections are not entered by setting the appropriate **checks**. RUPLAN prevents the faulty connections and issues a corresponding **error message**.

Automatic Text Features

Automatic text features are an important auxiliary device for increasing the **efficiency** of diagram editing. With this tool, RUPLAN offers the possibility to automatically realize clearly defined dependencies for captioning symbols. Apart from saving time, unnecessary errors are thus avoided.

Examples of automatic text features are:

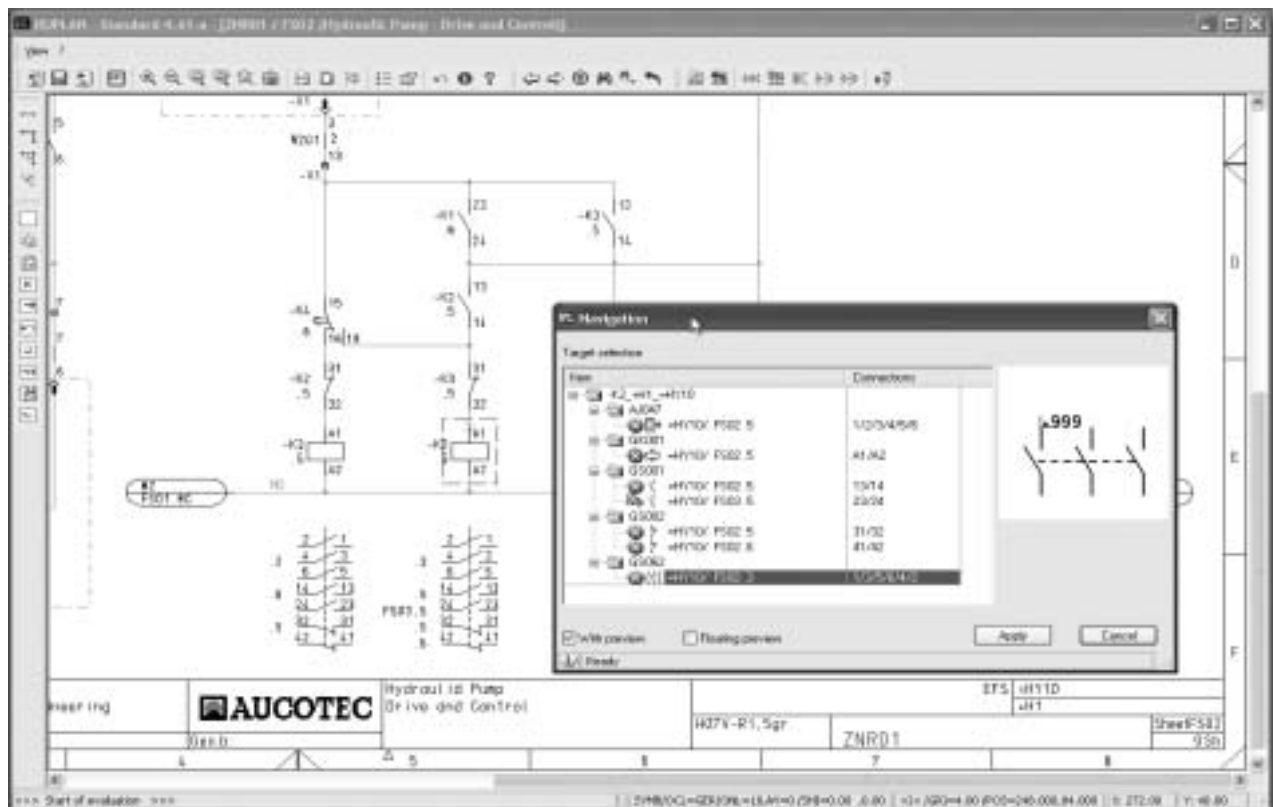
- ✗ Formation of the item designation from the sheet, the letter 'K' and the circuit path (e.g. 17K4).
- ✗ Adoption of the connected PLC output into the item designations of devices.

Automatic text features can be **permanently** effective, i.e. they are also carried out anew following changes such as movement of a symbol.

Jump Function (Navigation)

A user can also select a sheet to be edited via selecting a certain item or a component of an item in the **item tree**. RUPLAN then **automatically** jumps to the sheet where the desired element is displayed. It is possible to **switch** directly from a sheet to a successive sheet using **cross-references** - both for devices displayed in a distributed fashion and for potentials.

Figure 5: Navigation tree in the circuit diagram



□ Parts list, device list

Several parts list formats are available in the standard. The following data is output for the devices used in the diagram:

- ✗ Item name
- ✗ Number
- ✗ Device designation
- ✗ Device type
- ✗ Type-dependent data such as technical data, ordering data etc. (if present)

Depending on the list format, **composite devices** that are addressed in the circuit diagram under a single device type, are **resolved into their components**. It is possible to output a **type list** (device list without item names).

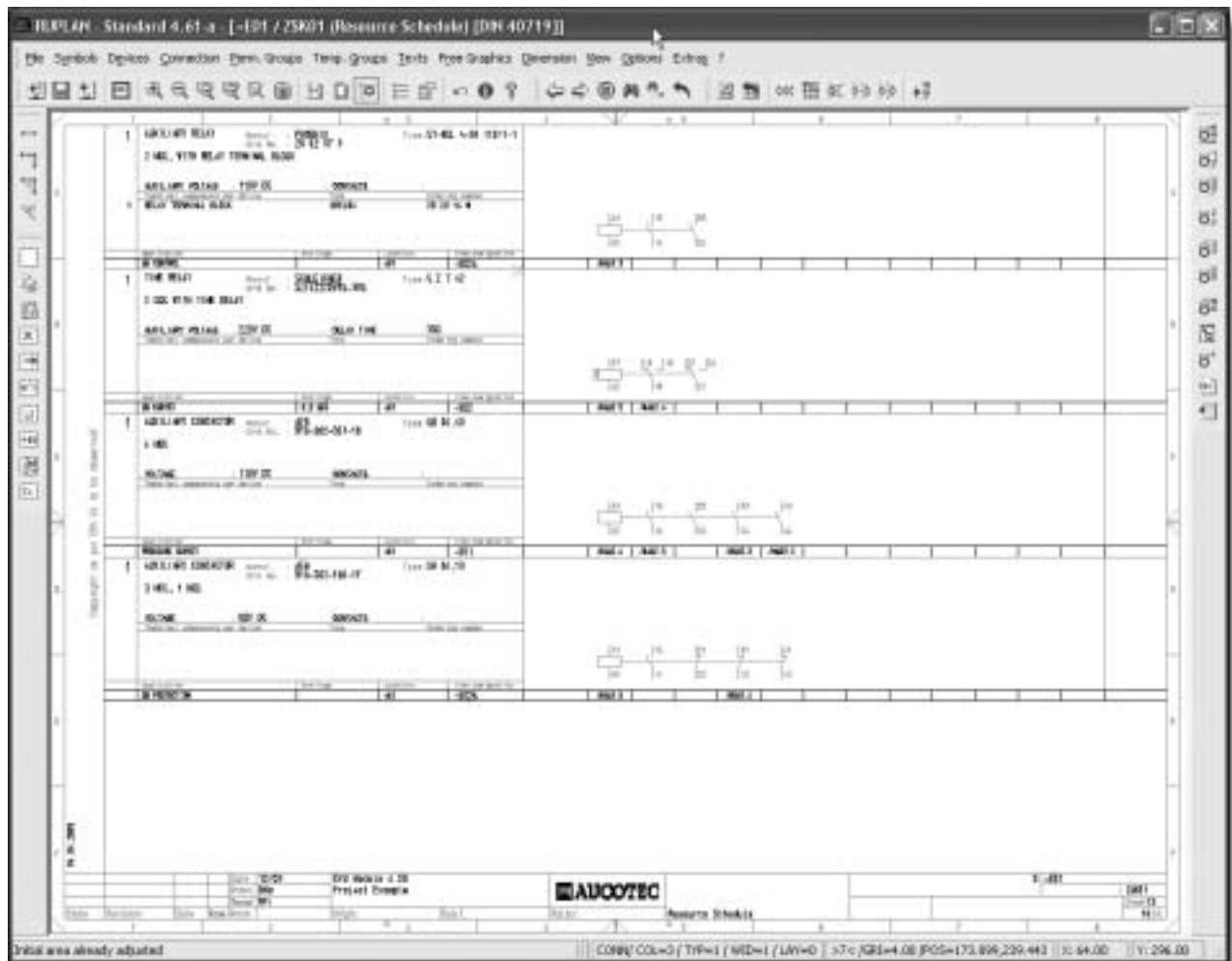
Figure 7: Device list

Reference	Device	Pcs	Manufacturer	Item No.	Technical specifications	
4010	01	01	Digital input module	1	ABB 120-210 402	IP11 24 channel inputs
4010	02	01	Digital output module	1	ABB 120-210 402	IP11 24 channel outputs
4010	03	01	Three-phase induction motor	1	ABB 100-210 722	IP23 500V, 3 A, 0.380 kVA
4010	04	01	Three-phase induction motor	1	ABB 100-210 722	IP23 500V, 3 A, 0.380 kVA
4010	05	01	Plug-and-socket connector	2	ABB	5-pin, 0.5m PC IP20
4010	06	01	Plug-and-socket connector (accessory for)	1	ABB	Plug socket for 5-pin
4010	07	01	Plug-and-socket connector (accessory for)	1	ABB	Socket connector for plug
4010	08	01	Plug-and-socket connector (accessory for)	8	ABB	5-pin plug, 0.5m PC IP20
4010	09	01	Plug-and-socket connector (accessory for)	8	ABB	5-pin socket, 0.5m PC IP20
4010	10	01	Plug-and-socket connector (accessory for)	1	ABB	Plug socket
4010	11	01	Plug-and-socket connector (accessory for)	1	ABB	Socket connector for
4010	12	01	Plug-and-socket connector	1	ABB	5-pin IP20
4010	13	01	Plug-and-socket connector (accessory for)	1	ABB	Plug socket for 5-pin
4010	14	01	Plug-and-socket connector (accessory for)	1	ABB	Socket connector for plug
4010	15	01	Plug-and-socket connector (accessory for)	8	ABB	5-pin plug, 0.5m PC IP20
4010	16	01	Plug-and-socket connector (accessory for)	8	ABB	5-pin socket, 0.5m PC IP20
4010	17	01	Plug-and-socket connector (accessory for)	1	ABB	Plug socket
4010	18	01	Plug-and-socket connector (accessory for)	1	ABB	Socket connector for
4010	19	01	Plug-and-socket connector	1	ABB	5-pin IP20
4010	20	01	Plug-and-socket connector (accessory for)	1	ABB	Plug socket for 5-pin
4010	21	01	Plug-and-socket connector (accessory for)	1	ABB	Socket connector for plug
4010	22	01	Plug-and-socket connector (accessory for)	8	ABB	5-pin plug, 0.5m PC IP20
4010	23	01	Plug-and-socket connector (accessory for)	8	ABB	5-pin socket, 0.5m PC IP20
4010	24	01	Plug-and-socket connector (accessory for)	1	ABB	Plug socket
4010	25	01	Plug-and-socket connector (accessory for)	1	ABB	Socket connector for
4010	26	01	Plug-and-socket connector	1	ABB	5-pin IP20
4010	27	01	Plug-and-socket connector (accessory for)	1	ABB	Plug socket for 5-pin
4010	28	01	Plug-and-socket connector (accessory for)	1	ABB	Socket connector for plug
4010	29	01	Plug-and-socket connector (accessory for)	8	ABB	5-pin plug, 0.5m PC IP20
4010	30	01	Plug-and-socket connector (accessory for)	8	ABB	5-pin socket, 0.5m PC IP20
4010	31	01	Plug-and-socket connector (accessory for)	1	ABB	Plug socket
4010	32	01	Plug-and-socket connector (accessory for)	1	ABB	Socket connector for

□ Resource Schedule

The resource schedule is managed in the EVU module. It represents another **form of the device list**. The overall representation of the devices is placed on separate sheets via a **handling symbol** and is supplemented with technical and commercial data from the device database. The device cross-references are entered on these separate sheets. This kind of representation is common particularly for large devices in **power supply systems**.

Figure 8: Resource schedule



□ Wiring list, network list

The evaluation interprets the **connection logic** of the diagrams, obtains detailed information concerning the individual connections (internal network number, potential designation, designation of the device connected, connector designation, reference, colour, cross section...) and uses this information to create a list.

Figure 9: Wiring list

Number	X-ref	Start	X-ref	Target	Network	Cross/Color
1	+E1/F301.1	=HT10+E1-ID:L1	INT. +E1/F301.1	=HT10+P10-X1:L1	EXT.	ED7V-0
2	+E1/F301.1	=HT10+E1-ID:L2	INT. +E1/F301.1	=HT10+P10-X1:L2	EXT.	ED7V-0
3	+E1/F301.2	=HT10+P10-X1:L3	EXT. +E1/F301.2	=HT10+E1-ID:L3	INT.	ED7V-0
4	+E1/F301.2	=HT10+E1-ID:PE	INT. +E1/F301.2	=HT10+P10-X1:PE	EXT. PE	ED7V-0
5	+E1/F301.1	=HT10+E1-ID:L1	EXT. +E1/F301.1	=HT10+E1-Q0:1		ED7V-0
6	+E1/F301.1	=HT10+E1-ID:L2	EXT. +E1/F301.1	=HT10+E1-Q0:3		ED7V-0
7	+E1/F301.2	=HT10+E1-ID:L3	EXT. +E1/F301.2	=HT10+E1-Q0:5		ED7V-0
8	+E1/F301.3	=HT10+E1-F3:L2	+E1/F301.3	=HT10+E1-S01:L1		
9	+E1/F301.3	=HT10+E1-S01:L1	+E1/F301.3	=HT10+E1-S01:L1		
10	+E1/F301.3	=HT10+E1-ED:L1	+E1/F301.3	=HT10+E1-S01:L2		
11	+E1/F301.6	=HT10+E1-F2:L6	+E1/F301.6	=HT10+E1-Q1:L3		

□ Cable List

All projected cables are **selected** and **output** with detailed information (cable designation, cable type, from-to, connected devices, length, etc.). The result can be printed or generated as drawing.

Figure 10: Cable list

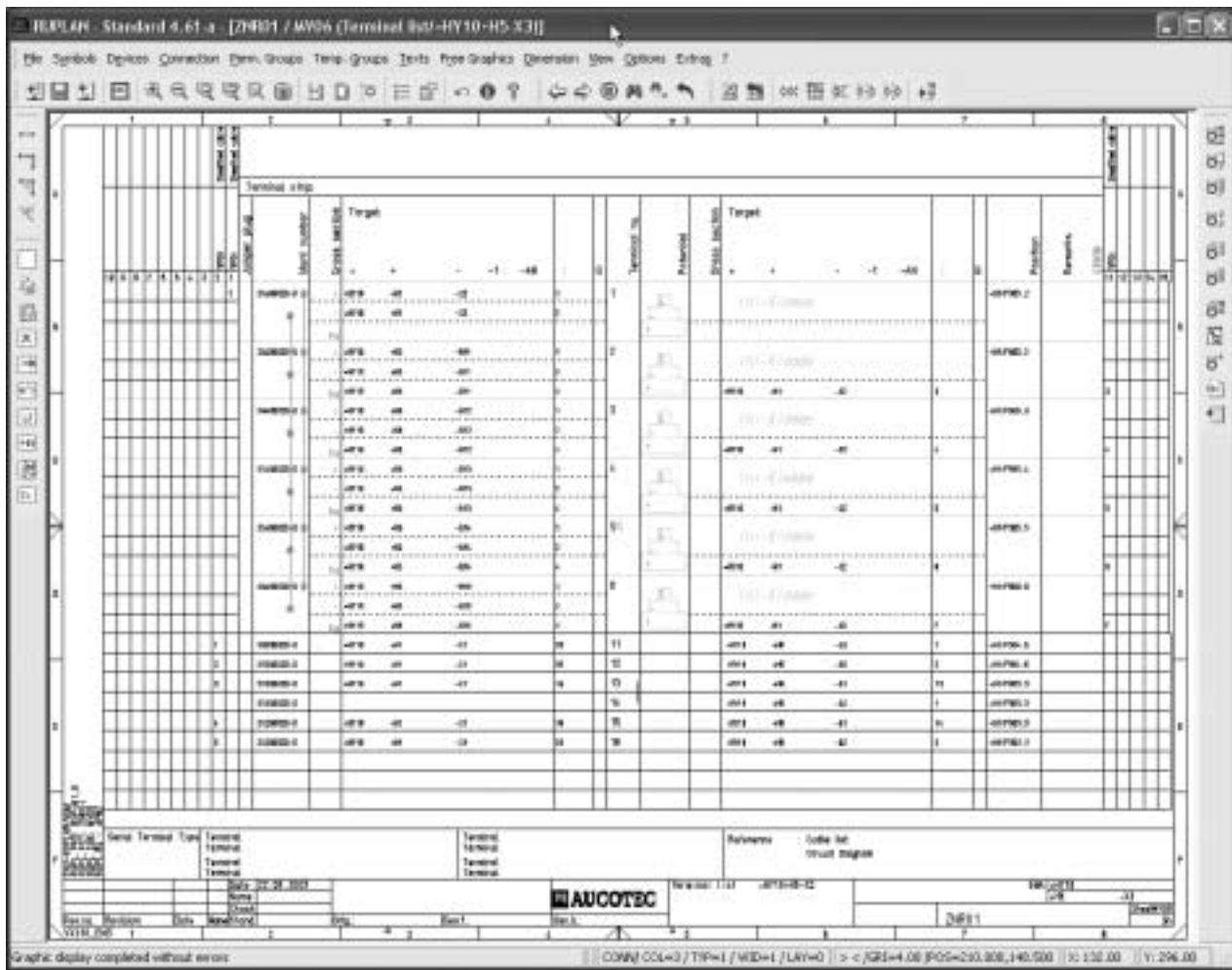
Code	From	To	From Length	To Length	From Target	To Target	Cable Type	Length	Manufacturer
1000	1000	1001	1000	1000	Cable 1000	Cable 1001	1000	1000	1000
1001	1001	1002	1001	1001	Cable 1001	Cable 1002	1001	1001	1001
1002	1002	1003	1002	1002	Cable 1002	Cable 1003	1002	1002	1002
1003	1003	1004	1003	1003	Cable 1003	Cable 1004	1003	1003	1003
1004	1004	1005	1004	1004	Cable 1004	Cable 1005	1004	1004	1004
1005	1005	1006	1005	1005	Cable 1005	Cable 1006	1005	1005	1005

□ Terminal Diagram

RUPLAN **automatically** adopts all of the terminals entered in the diagram into the terminal diagram. The default setup provides several forms, which can be supplemented with one's own forms.

Besides, jumpers, swivel jumpers and separation plates are integrated into and graphically represented in the terminal diagram. RUPLAN also takes into account vacant terminals defined in the drawing. Multiple terminals, which can be represented in distributed form in the diagrams, are output.

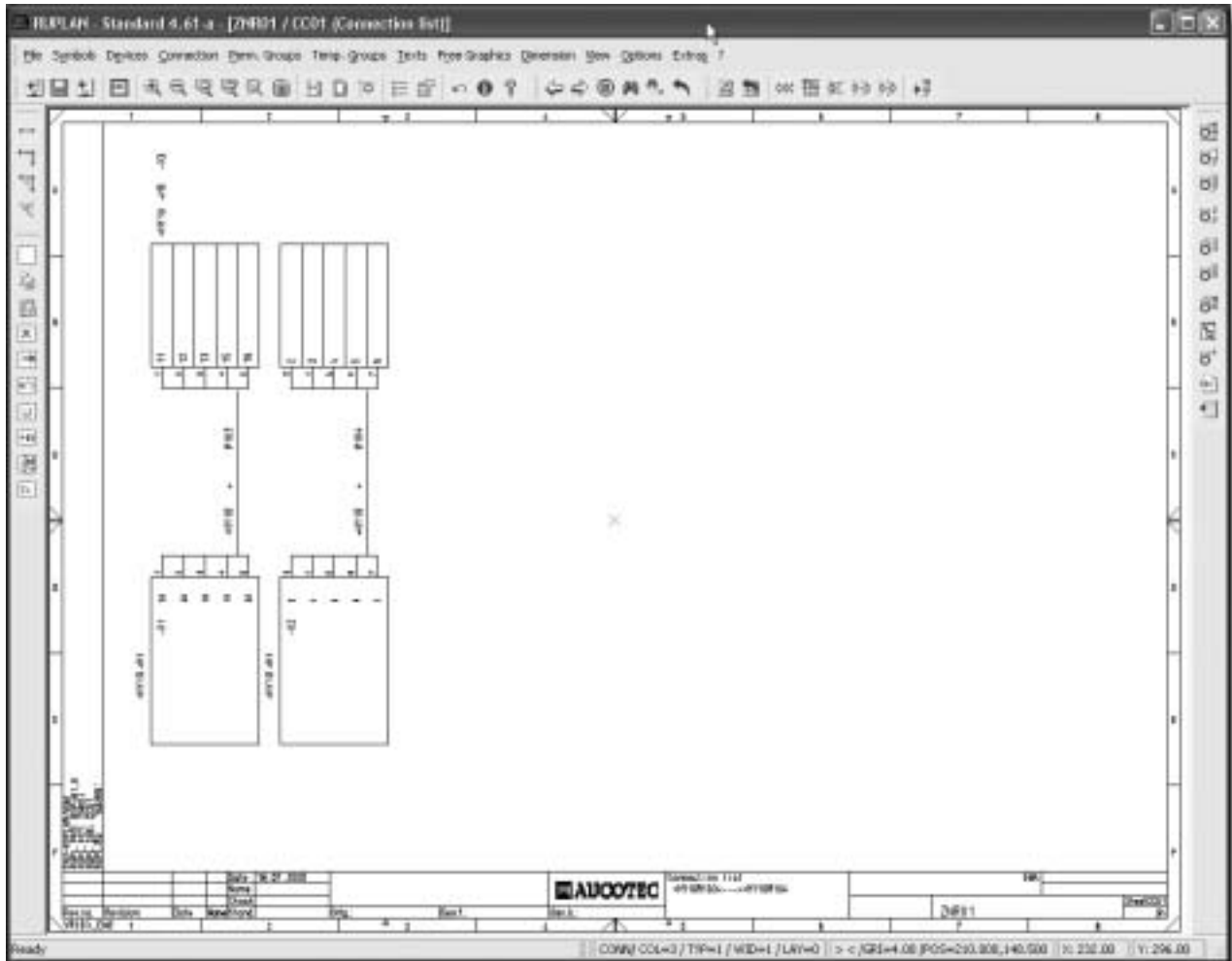
Figure 11: Terminal diagram



□ Connector Diagram

Similarly to the terminal diagram, **all** plug symbols placed in the diagram are searched for, the network logic is **evaluated** and the information **output** in a connector diagram. It is possible to create one's own forms. The outputs in the standard setup correspond to the terminal diagram.

Figure 12: Connector diagram



☐ Cable Connection List

From the selected diagrams, RUPLAN generates a cable connections list that contains the following information: Item designation of the cable, "from" and "to" texts taken from the cable symbol, length taken from the cable symbol, total number of cores, number of cores used, reserve, technical description of the cable, core number, item designation of the connected destinations, network name, position of the cores.

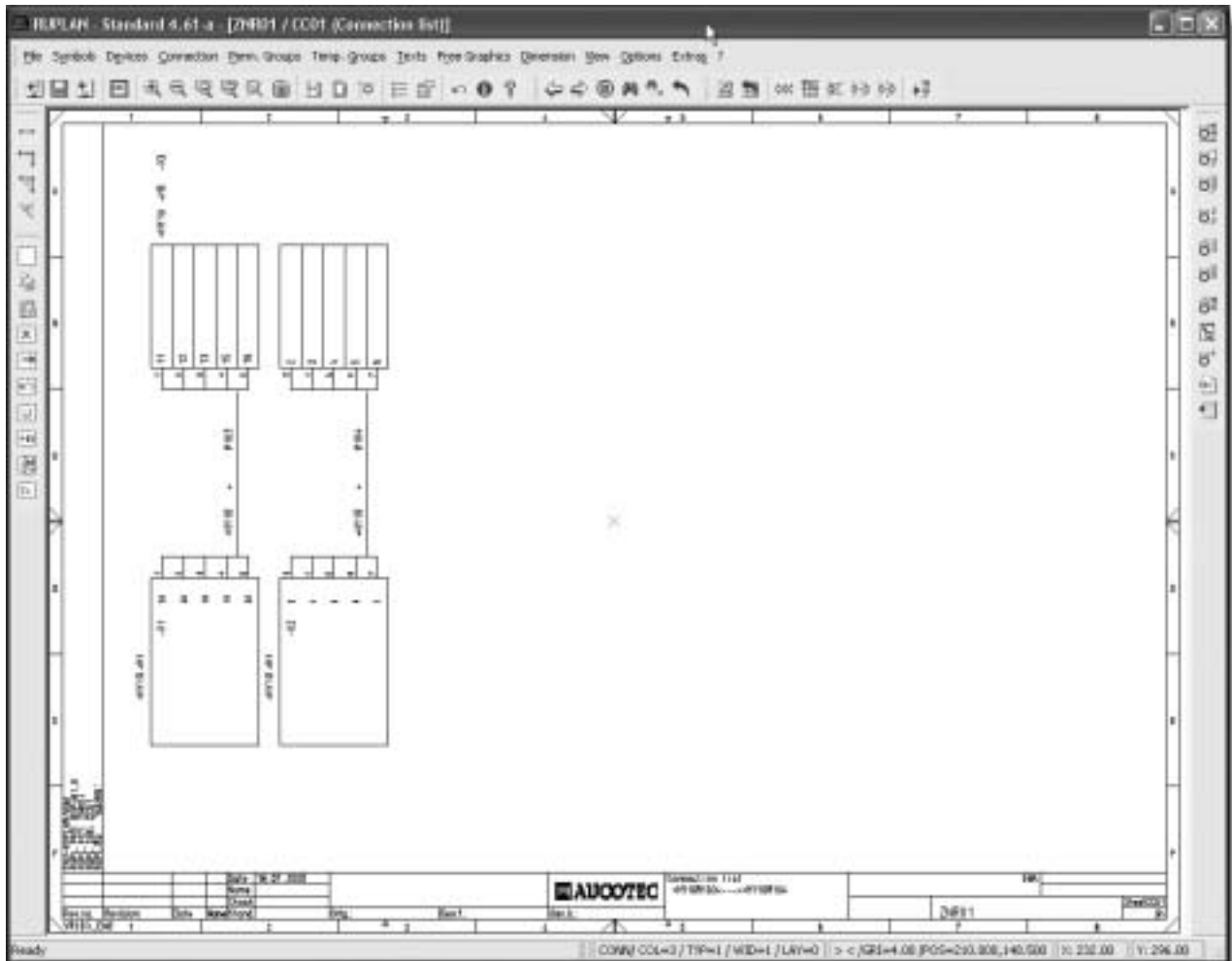
Figure 13: Cable connection list

Cable type/Description	Core	Target 1	Pin	Target 2	Pa	Network	Position
Code: WRTS + V001	1 -WRTS -01 -01	1 -WRTS -06 -01	1 -WRTS -06 -01	1 -WRTS -06 -01	1		WRTSPOS 1
Type: Neutral-Leading Length: 25m	2 -WRTS -01 -01	2 -WRTS -06 -01	2 -WRTS -06 -01	2 -WRTS -06 -01	2		WRTSPOS 1
Product: LWP	3 -WRTS -01 -01	3 -WRTS -06 -01	3 -WRTS -06 -01	3 -WRTS -06 -01	3		WRTSPOS 1
Manufacturer: TSD_Signal	4 -WRTS -01 -01	4 -WRTS -06 -01	4 -WRTS -06 -01	4 -WRTS -06 -01	4	PC /N	WRTSPOS 1
Material: TSD_Sig	5 -WRTS -01 -01	5 -WRTS -06 -01	5 -WRTS -06 -01	5 -WRTS -06 -01	5		WRTSPOS 1
Control: Signal	6 -WRTS -01 -01	6 -WRTS -06 -01	6 -WRTS -06 -01	6 -WRTS -06 -01	6		WRTSPOS 1
Control: Signal	7 -WRTS -01 -01	7 -WRTS -06 -01	7 -WRTS -06 -01	7 -WRTS -06 -01	7		WRTSPOS 1
Control: Signal	8 -WRTS -01 -01	8 -WRTS -06 -01	8 -WRTS -06 -01	8 -WRTS -06 -01	8		WRTSPOS 1
Control: Signal	9 -WRTS -01 -01	9 -WRTS -06 -01	9 -WRTS -06 -01	9 -WRTS -06 -01	9		WRTSPOS 1
Control: Signal	10 -WRTS -01 -01	10 -WRTS -06 -01	10 -WRTS -06 -01	10 -WRTS -06 -01	10		WRTSPOS 1
Control: Signal	11 -WRTS -01 -01	11 -WRTS -06 -01	11 -WRTS -06 -01	11 -WRTS -06 -01	11		WRTSPOS 1
Control: Signal	12 -WRTS -01 -01	12 -WRTS -06 -01	12 -WRTS -06 -01	12 -WRTS -06 -01	12		WRTSPOS 1
Control: Signal	13 -WRTS -01 -01	13 -WRTS -06 -01	13 -WRTS -06 -01	13 -WRTS -06 -01	13		WRTSPOS 1
Control: Signal	14 -WRTS -01 -01	14 -WRTS -06 -01	14 -WRTS -06 -01	14 -WRTS -06 -01	14		WRTSPOS 1
Control: Signal	15 -WRTS -01 -01	15 -WRTS -06 -01	15 -WRTS -06 -01	15 -WRTS -06 -01	15		WRTSPOS 1
Control: Signal	16 -WRTS -01 -01	16 -WRTS -06 -01	16 -WRTS -06 -01	16 -WRTS -06 -01	16		WRTSPOS 1
Control: Signal	17 -WRTS -01 -01	17 -WRTS -06 -01	17 -WRTS -06 -01	17 -WRTS -06 -01	17		WRTSPOS 1
Control: Signal	18 -WRTS -01 -01	18 -WRTS -06 -01	18 -WRTS -06 -01	18 -WRTS -06 -01	18		WRTSPOS 1
Control: Signal	19 -WRTS -01 -01	19 -WRTS -06 -01	19 -WRTS -06 -01	19 -WRTS -06 -01	19		WRTSPOS 1
Control: Signal	20 -WRTS -01 -01	20 -WRTS -06 -01	20 -WRTS -06 -01	20 -WRTS -06 -01	20		WRTSPOS 1
Control: Signal	21 -WRTS -01 -01	21 -WRTS -06 -01	21 -WRTS -06 -01	21 -WRTS -06 -01	21		WRTSPOS 1
Control: Signal	22 -WRTS -01 -01	22 -WRTS -06 -01	22 -WRTS -06 -01	22 -WRTS -06 -01	22		WRTSPOS 1
Control: Signal	23 -WRTS -01 -01	23 -WRTS -06 -01	23 -WRTS -06 -01	23 -WRTS -06 -01	23		WRTSPOS 1
Control: Signal	24 -WRTS -01 -01	24 -WRTS -06 -01	24 -WRTS -06 -01	24 -WRTS -06 -01	24		WRTSPOS 1
Control: Signal	25 -WRTS -01 -01	25 -WRTS -06 -01	25 -WRTS -06 -01	25 -WRTS -06 -01	25		WRTSPOS 1
Control: Signal	26 -WRTS -01 -01	26 -WRTS -06 -01	26 -WRTS -06 -01	26 -WRTS -06 -01	26		WRTSPOS 1
Control: Signal	27 -WRTS -01 -01	27 -WRTS -06 -01	27 -WRTS -06 -01	27 -WRTS -06 -01	27		WRTSPOS 1
Control: Signal	28 -WRTS -01 -01	28 -WRTS -06 -01	28 -WRTS -06 -01	28 -WRTS -06 -01	28		WRTSPOS 1
Control: Signal	29 -WRTS -01 -01	29 -WRTS -06 -01	29 -WRTS -06 -01	29 -WRTS -06 -01	29		WRTSPOS 1
Control: Signal	30 -WRTS -01 -01	30 -WRTS -06 -01	30 -WRTS -06 -01	30 -WRTS -06 -01	30		WRTSPOS 1
Control: Signal	31 -WRTS -01 -01	31 -WRTS -06 -01	31 -WRTS -06 -01	31 -WRTS -06 -01	31		WRTSPOS 1
Control: Signal	32 -WRTS -01 -01	32 -WRTS -06 -01	32 -WRTS -06 -01	32 -WRTS -06 -01	32		WRTSPOS 1

□ Cable Connection Diagram

A diagram of the connections is created for the selected terminal strips that graphically displays the cables laid and their destinations.

Figure 14: Cable connection diagram



□ Contents Table

To create a contents table, all desired diagrams are selected from a sheet database, and their descriptions and the revision state information from the drawing frame are output. **Optionally** the result of the evaluation can be **printed** or **stored** as drawing in the sheet database and then **plotted**.

Figure 15: Contents table

User drawing number		Producer drawing number		Geometric Identifier		Description
Area	Area	Function, Location, Resource	range	Sheet number		
						Sheet 1001
						Table of contents
						Sheet 1002
						Sheet 1003
						Sheet 1004
						Sheet 1005
						Sheet 1006
						Sheet 1007
						Sheet 1008
						Sheet 1009
						Sheet 1010
						Sheet 1011
						Sheet 1012
						Sheet 1013
						Sheet 1014
						Sheet 1015
						Sheet 1016
						Sheet 1017
						Sheet 1018
						Sheet 1019
						Sheet 1020
						Sheet 1021
						Sheet 1022
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						Sheet 1024
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						Sheet 1085
						Sheet 1086
						Sheet 1087
						Sheet 1088
						Sheet 1089
						Sheet 1090
						Sheet 1091
						Sheet 1092
						Sheet 1093
						Sheet 1094
						Sheet 1095
						Sheet 1096
						Sheet 1097
						Sheet 1098
						Sheet 1099
						Sheet 1100

□ Test Runs

Test runs are used to check the complete projecting data on the basis of **quality criteria**. In this context, e.g. the following aspects are taken into account:

- ✗ Is the captioning of the item complete?
- ✗ Is the device present in the device database?
- ✗ Are the symbols permissible?
- ✗ Have too many partial functions been assigned?
- ✗ Has the handling symbol been treated correctly?

Terminal Test Run

- ✗ Has the terminal been properly captioned?
- ✗ Is the terminal present in the device database?
- ✗ Are the terminal symbols permissible?
- ✗ Have too many partial functions been assigned?

In addition, the following information is issued:

- ✗ Defined swivel jumpers and separation plates
- ✗ Number of spare terminals

Cable Test Run

- ✗ Are the specifications in the cable symbol correct?
- ✗ Is the cable type present in the device database?
- ✗ Have cable symbols been placed repeatedly?
- ✗ Are there core symbols without cable symbols?
- ✗ Have too many core symbols been set?

Potential Test Run

- ✗ Are potential cross-reference symbols correctly captioned?
- ✗ Potentials correctly captioned?
- ✗ Potentials correctly branched?

▣ Revision Management

RUPLAN is equipped with a document-oriented revision management. It comprises the following features:

✗ Enabling

With the release, a first defined state of the project is committed. For this purpose all revision states possibly present in the drawing frame are deleted, the contents table is updated, modification notes on the sheets are deleted, and a first revision sheet with revision no. 0 is created.

✗ Revisions Measures

The user can carry out a new revision procedure. For this purpose the revision number is incremented by 1, the revision states in the drawing frames of all sheets concerned are updated, the contents table is updated, the modification notes on the sheets are deleted, and a revision sheet is created containing a list of the changed and meanwhile deleted sheets.

✗ List of Previous Revision Measures

A list of all revision measures carried out previously is printed.

☑ Default Item List

The default item list can be used to manage partial projects, partial circuits or resources in RUPLAN before they are used in graphic diagrams (e.g. preliminary parts list, list of motors, list of modules).. The user can then automatically copy these into the project (partial projects), place them automatically in new sheets (partial circuits) or place them interactively (single devices). The user **knows at any time** which elements in the list have already been used (tick off).

☑ User-Definable Evaluations (AWT)

AWT is the RUPLAN-inherent procedural "query language" that can be used to **interactively** and **online** access RUPLAN-internal and external data with read/write options. Using AWT strings of commands, the entire stored text and connector **logic is acquired over several sheets**. Thus existing data can be evaluated and new data (e.g. sheets) can be created automatically.

AWT therefore offers a basis for creating company-specific solutions with any degree of complexity.

☑ New Standards

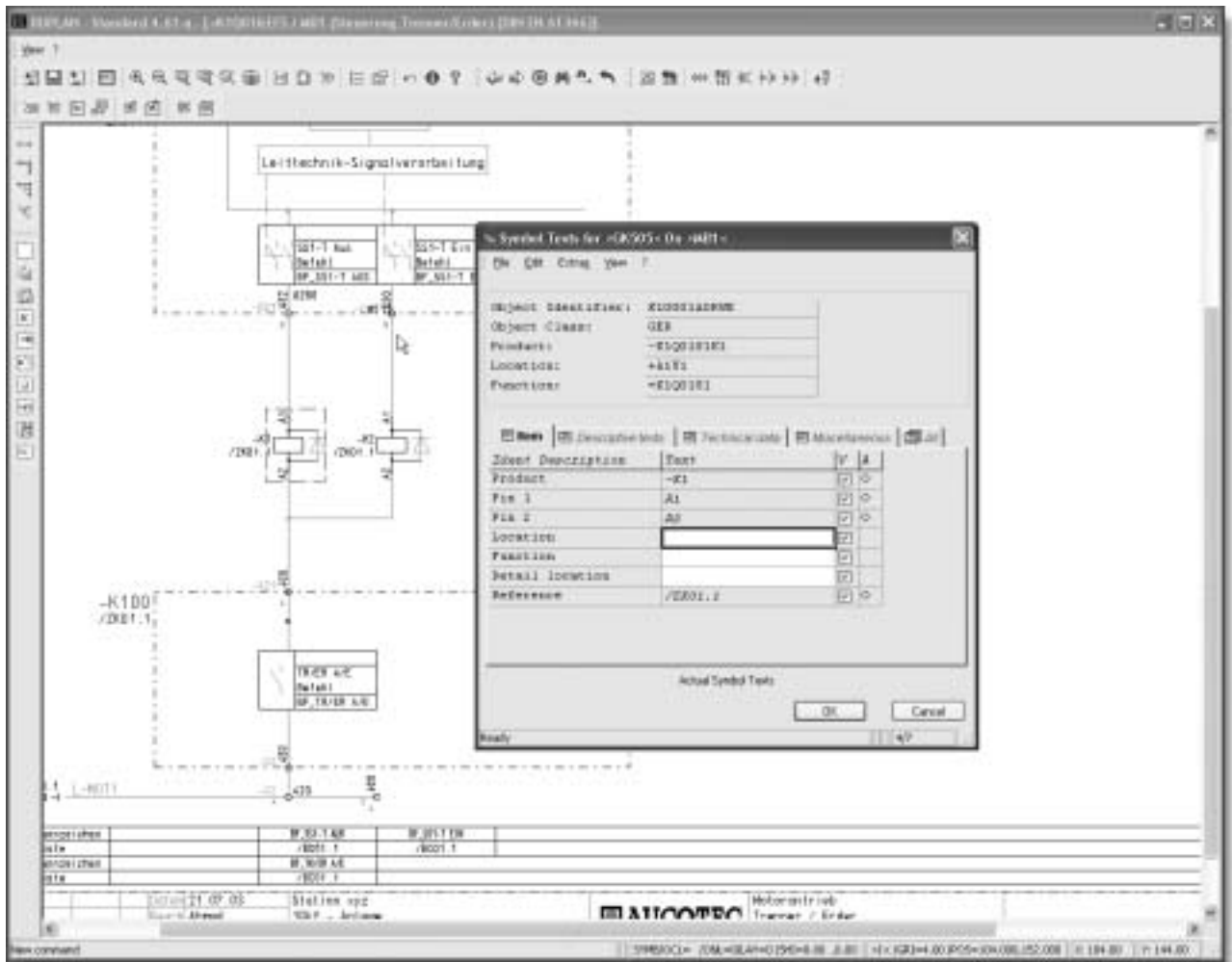
Since the year 2000, the former standards such as DIN 40719, DIN 40900 etc. are no longer valid. They were replaced by **internationally valid IEC standards**. The most important ones are:

- ✗ IEC 61346 Structuring Principles and Reference Identifiers
- ✗ IEC 61082 Documents for Electrical Engineering
- ✗ IEC 61355 Identification and Structuring of the Documentation
- ✗ IEC 60617 Symbols

The new standards more strongly geared towards engineering concepts and the support by IT systems. The conventional hierarchical plant structure according to plant, location and item is replaced by three independent views of the plant. Here the **functional, location** and **product views** are entirely independent and on par with each other.

Moreover the standard for document designation has changed. Thus e.g. the drawing frame may contain only specifications for the drawing itself. The formerly common specifications of plant or location designation must be given in the drawing section of the sheet.

Figure 16: Representation in the circuit diagram according to IEC 61346



The new standards have a profound influence on plant documentation. They therefore require an entirely new procedure for the CAE system as well as new support and help tools.

RUPLAN is the **first CAE system** to actively **support the new standards**.

Independently of the presence of circuit diagrams, the plant structure can be predefined as a tree in the three views product, location and function. This is used to automatically create graphic structural diagrams. During projecting, the user is offered the respective possible reference identifiers depending on the structural level on which he moves.

10 Background Processes

Plotting

RUPLAN permits the use of all printers and plotters supported by Windows. For other plotters it should be checked individually whether their use with the standard plotter software is possible.

Several plotters may be operated **in parallel**.

The plotting process is carried out in the background, the user can **continue working** at his workplace **immediately** after starting the plot.

Background Operation

Evaluation routines and plotting of drawings can be executed in the background.

11 Interfaces

AWT Interface

The AWT language described in chapter 8.2 enables **outputting** any diagram contents, symbol or device data **to files** that can be used by processing programs. Likewise data **from files** can be **imported** into diagrams, symbols or devices.

RIS (RUPLAN-Internal Interface)

By means of this interface, diagrams, symbols, devices and AWT strings of commands can be output to an ASCII file and read in from a file. The RIS format is invariably defined in RUPLAN.

External ODBC Database Interface

In RUPLAN the possibility to **access** an external database **online** has been realized. In this way e.g. a material database, an archiving system or other foreign data inventories can be accessed.

For this purpose, the name of a group AWT can be specified in any text field of the diagram. An SQL program that realizes the actual database access is integrated into this group AWT. Depending on the case, this must be written specifically **for each user**.

By means of the AWT programs, the diagram data are made available in a buffer. Following execution of the database access, the data transmitted hereby are likewise entered via AWT at the desired positions in the diagram.

VNS (Neutral Interface, DIN V 40950)

The neutral interface by means of which it is possible to exchange diagram sets between different CAD/CAE systems is available in stage 2.

DXF, DWG

Interface for exchanging graphic data in the AutoCAD format.

IGES

The internationally standardized IGES interface, by means of which graphics data can be exchanged between different CAD/CAE systems, has been partially realized for level 4.0.

❑ RBS (RUPLAN Instruction Interface RBS)

The RBS offers the possibility to **obtain RUPLAN features** from other data processing systems. Using RBS, RUPLAN diagrams can be called e.g. from a database application for further processing. Another application is the execution of RUPLAN features without activating the RUPLAN user interface, e.g. the **control of RUPLAN from an EDM system**.

❑ Excel

By means of the Excel interface, new diagrams can **comfortably be created** automatically on the basis of existing template diagrams, or existing diagram sets can be **modified** systematically. In this way partial circuits are automatically placed.

❑ Office

Links to external documents can easily be entered in the RUPLAN diagrams. If activated, these links are displayed by activation of the display program corresponding to the document type.

❑ EDM/SAP

There are **numerous integration interfaces** for establishing links between RUPLAN and EDM/PPS systems. Among others, there is an online coupling with SAP in the areas material master data, parts list, document management and maintenance. These integration options are always carried out as service projects on the basis of a licensed basic interface.

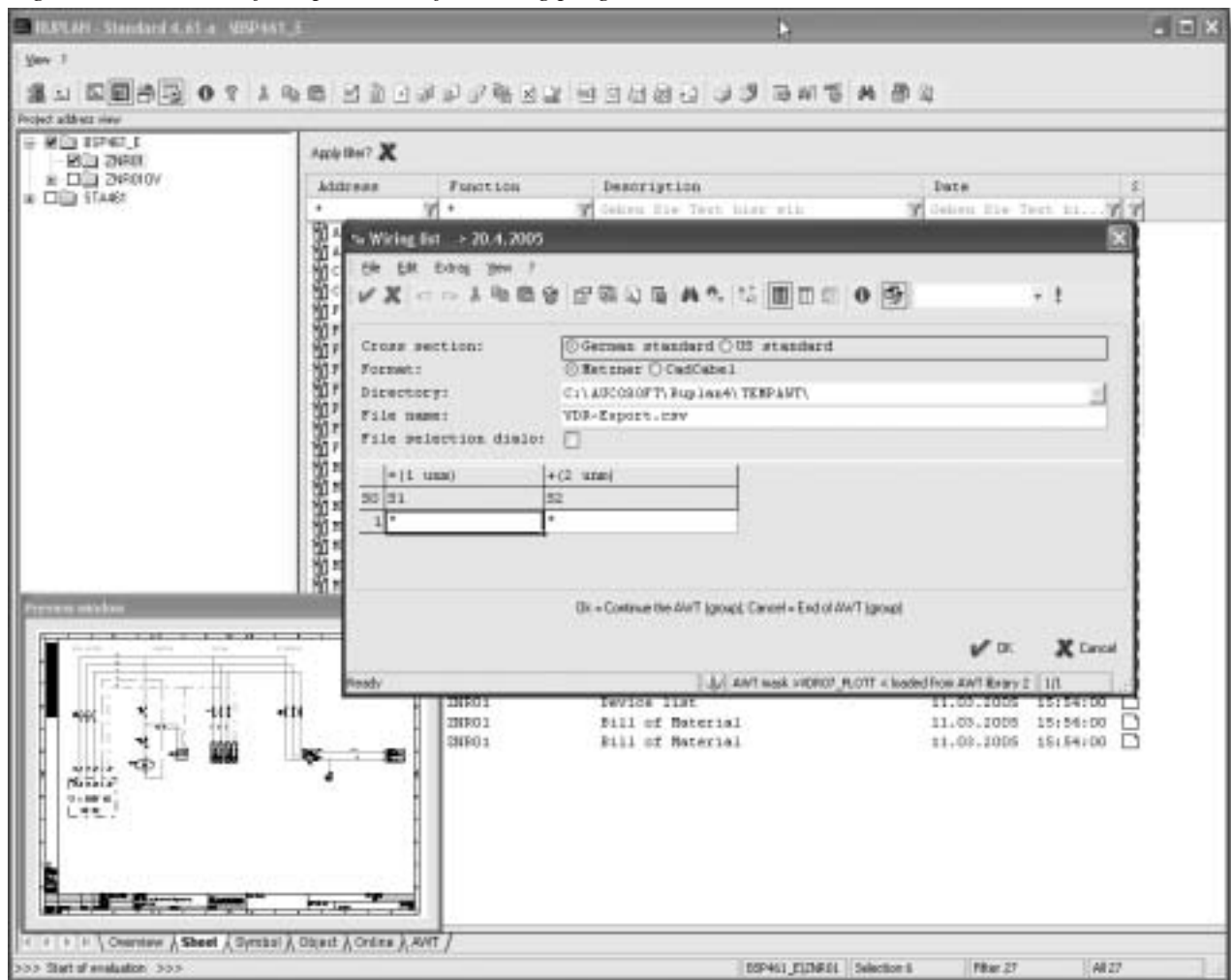
❑ Terminal Configuration

Online couplings to the terminal configuration systems from Phönix (Clipproject) and WAGO (Smart Designer) are available. The terminal information from RUPLAN is transferred to the systems and can be further processed there. Terminal views can be transferred back to RUPLAN and can there be represented in drawings with the hybrid module.

❑ Additional Interfaces

Additional interfaces, among other things for wiring programs from various manufacturers, are available. We will be happy to give you further information on request.

Figure 18: Creation of adoption data for wiring programs



12 Supplementary Modules

RUPLAN/View

RUPLAN/View accesses the original RUPLAN data but only permits read access. The user can **view all of the diagrams** but is unable to carry out any logically relevant changes. Using the **redlining function**, symbols and elements of free graphics (lines, circles, texts) can be entered in the plans in a fixed layer with a given colour to highlight modifications to be carried out. It is also possible to add a new sheet with redlining contents. The redlining entries are evaluated by RUPLAN/S and selectively offered to the user. RUPLAN/View offers the full scope of navigation functions.

RUPLAN/SL (Cabinet Layout)

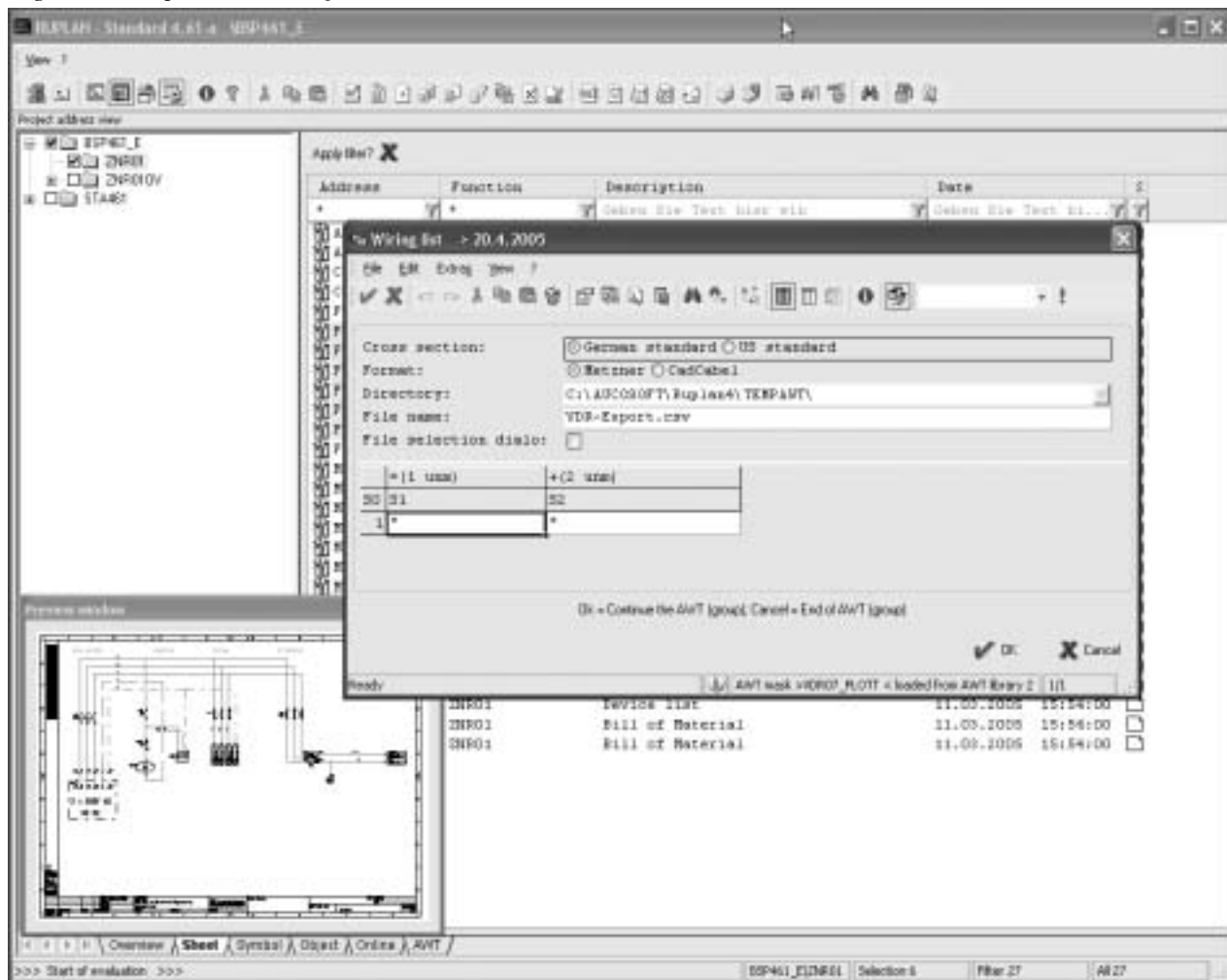
As a **supplement** to the circuit diagram creation with online device cross-references, there is a module for cabinet layout. In this way it is possible to ascertain that all of the devices used in the circuit diagram have actually been entered in the location diagram.

During the definition of a device, a symbol is used to specify how the device is represented in the cabinet. If there are no symbols, RUPLAN automatically creates a rectangle or circle corresponding to the dimensions.

Upon starting the cabinet module, the **items** belonging to the location to be edited are **offered** in a mask. If items have been selected, RUPLAN automatically places the symbols defined in the device next to one another in the cabinet symbol, the user having the choice whether the placement is to be effected in the X or Y direction. **System checks** prevent that symbols are placed on top of each other or in blocked areas. When placed symbols are deleted, the ensuing gaps are automatically filled. The online management prevents multiple placement of symbols to be put into switchboard.

Both the cabinet symbol and the symbols to be put into the switchboard are true to size, i.e. any scale accompanying the sheet is taken into account for placement.

Figure 19: Representation of a cabinet



RUPLAN/PLC (Programmable Logic Controllers)

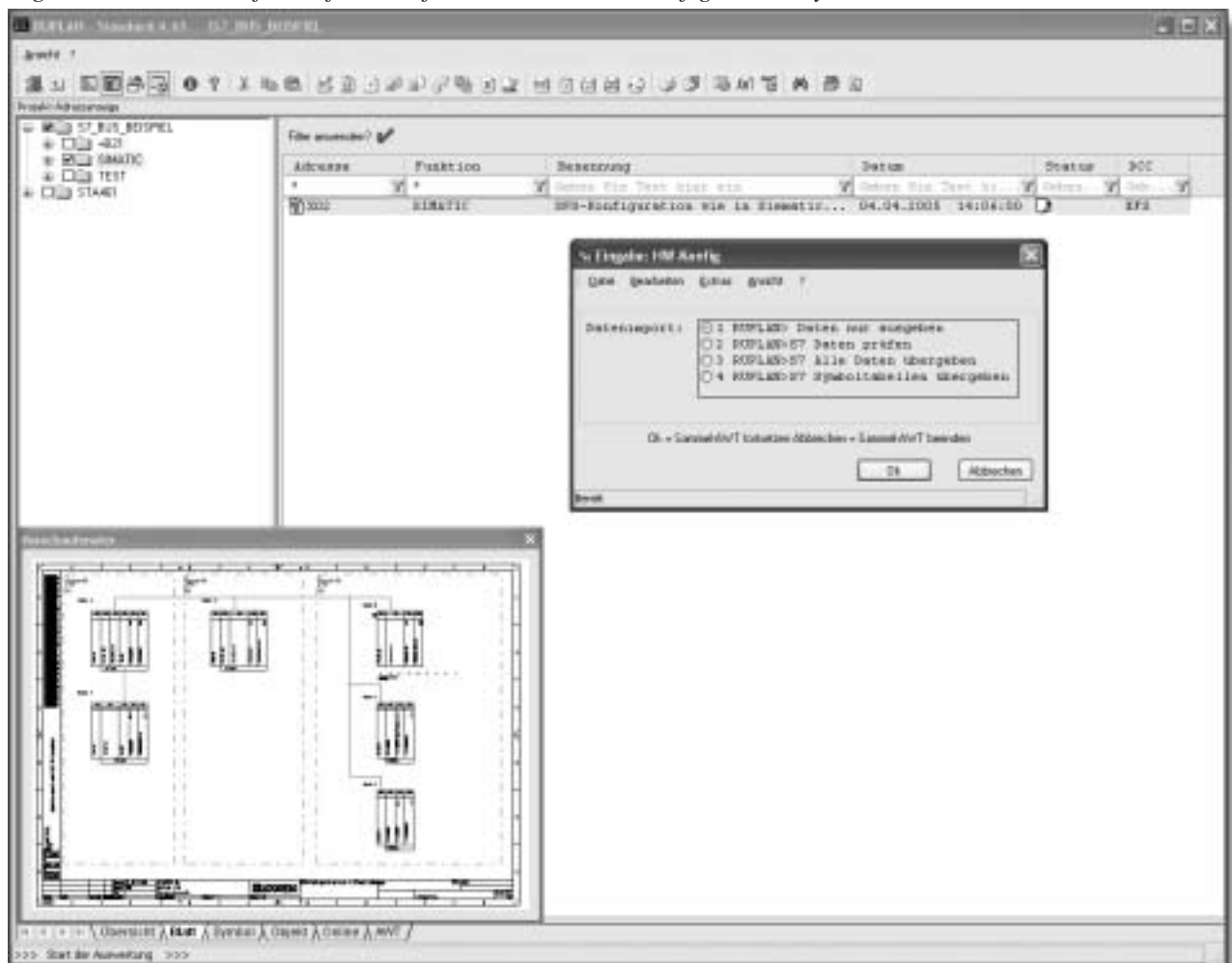
Using the RUPLAN PLC module, the data arising during plant projecting in RUPLAN and PLC programming systems (e.g. I/O assignment or symbols) can be **transferred** from RUPLAN to the programming device and

vice versa and can be **checked** or **updated**. Circuit diagrams are automatically generated from assignment lists. It is ensured that the I/O captioning in the circuit diagram agrees exactly with the data of the assignment list.

Due to the choice of a neutral interface, the module is largely **independent** of the PLC system selected.

For the Siemens S7 configuration system (HWKONFIG) a **bidirectional online coupling** is available.

Figure 20: Creation of transfer data for the Siemens S7 configuration system



RUPLAN/Hybrid

Images present in a raster format such as scanned drawings, company logos or photographs, can be integrated into RUPLAN drawings. The formats TIFF, JPG, BMP and GIF are permissible.

AUCOTECview

For different areas of operation in a company and also for the ultimate plant customer, easy access to the data of an electric's documentation is very useful.

AUCOTEC*view* represents an extremely **user-friendly**, easy means for **creating data CD's** and **making** the drawings **available** in the target system. For this purpose, the programs required later on at the information workplace, such as an ACCESS runtime system and the Acrobat Reader, are also stored on the CD.

Using the software components supplied, sheets can be selected from RUPLAN projects, converted into the PDF format and stored on a CD together with a setup program, a selection program and a viewer. With the setup program, the components required for a search can be installed in the target system. In the target system, specific drawings can be searched for by means of the frame texts or item names and can then be displayed or plotted. With the information in the ACCESS database it is possible to navigate using the device and potential cross-references. The texts belonging to each symbol, even the hidden ones, can be displayed.

All of the necessary activities can be activated via icon so that no specific knowledge is require

☑ GerTec

GerTec is a comfortable system for entering and maintaining device master data on the basis of an ACCESS database. RUPLAN accesses the GerTec data **online**.

13 Branch Solutions

☑ RUPLAN/EVU (EVU Module)

With the EVU module, an ATW program based on RUPLAN, a **standard industrial sector solution** has been created for the sector power supply systems. The module is constantly being expanded and adapted to current requirements in cooperation with a committee formed by power supply companies, plant manufacturers and engineering enterprises.

It enables the following:

- ✗ a standardized method of operation for preparing a documentation
- ✗ the common use of data inventories
- ✗ the paperless data exchange between manufacturer and operator
- ✗ the automatic creation of diagrams

The EVU module offers support and tools for the new standard EN 61346. Projects can alternatively be created according to the old or the new standard.

The EVU module comprises the following components:

- ✗ a symbol database with approx. 1,000 symbols based on the standard graphical symbols file and complying with EN 60617.

It contains

- Graphical symbols
- Forms
- Symbols for magazine technology
- Symbols for item design
- Layout symbols for cabinets and views
- Special symbols

- ✗ A device database with
 - Device descriptions (manufacturer-independent)
 - Connectors
 - Electric relations

- ✗ Special RUPLAN AWT's for the evaluations
 - Contents table
 - Terminal diagram
 - Automatic restore function for the adoption of terminal information from the terminal diagram into the circuit diagrams
 - Cross connection diagram
 - Cable list
 - Connector diagram
 - Resource schedule
- ✗ Guidelines for the creation of circuit books in power supply systems
- ✗ Quality assurance tools for automatic checking of circuit books concerning their conformity to the project planning guidelines.

▣ Municipal Utilities Package

For users who do not plan projects themselves but want to utilize the documentation in accordance with a **recognized standard**, there is the municipal utilities package. It contains RUPLAN/View by means of which the user can conveniently navigate within the documentation and which permits redlining entries for simple maintenance work.

Essential components of this package are the **quality assurance tools**, which can be used to check, in the course of the acceptance of a documentation, whether the project planning guidelines of the EVU module have been observed.

▣ Water Management

Similarly to the industrial sector module EVU, the industrial sector module water management offers a solution adapted to the working practice and the needs of water management. It is likewise defined and **further developed by a committee** formed by customers. The water management module contains, apart from RUPLAN and the supplementary modules SSL, PLC and GerTec, additional symbols and special evaluation routines that were defined by the committee. A projecting guideline is likewise a component of the modul.

▣ KABI

KABI is a general solution for projecting **wire harnesses** based on RUPLAN. It encompasses the entire process from the circuit diagram via the schematic wiring harness diagram to the manufacturing documents (parts lists, table of cable lengths, mounting plate diagram, ...). See also the separate description.

▣ LOC

RUPLAN/LOC is a branch solution for projecting **rail vehicles**. It takes especially into account the branch-specific wiring logic.

14 Extensions

In addition to the standard evaluations described, **user-specific requirements** can also be realized.

Using the AWT interface, information to be processed by subsequent user programs can e.g. be written from the diagrams into a file with the desired formatting. In cooperation with the user AUCOTEC can of course also realize requests that cannot be solved with the means offered by the RUPLAN standard. **Do not hesitate to contact us!**

With the conclusion of a software maintenance contract, the customer gains the right to obtain the most recent RUPLAN version and may use our hotline.

15 Hardware

RUPLAN is executable under the operating systems Windows NT4 (SP6), Windows 2000, Windows XP and Windows 2003.

☑ Multi-User Systems

RUPLAN can be operated as individual workplace or in a network as a multi-user system.

☑ RUPLAN-PC

Technical requirements of the computer:

- ✗ Processor from 500 MHz upward
- ✗ At least 128 MB main memory, 256 MB main memory recommended
- ✗ Operating system
 - Windows NT 4.0 (SP 6a)
 - Windows 2000 professional (SP 2)
 - Windows XP professional
 - Windows 2003
- ✗ Network protocol TCP/IP
- ✗ At least 270 MB hard disk space, 1 GB hard disk space recommended
- ✗ 19" Graphic screen, 256 colours, resolution at least 1024 * 768 pixels, fonts with 96 dpi
- ✗ Internet Explorer from 5.0 upward

16 Range of Services Offered

☑ Counselling

Whether it be hardware, software, network, operating systems or interfaces: **Customer-specific optimization** of the working method with RUPLAN is our goal. We want you to be happy!
Our Service team will be only too happy to be at your disposal.

☑ Training

In Eschborn, Hannover or Leinfelden-Echterdingen as well as at the customer's, AUCOTEC offers training courses for all RUPLAN functions and modules.

You will find seminars, dates and prices in the respective most recent **RUPLAN training program**. Moreover a customer-specific training on the customer's premises is possible on request.

☑ Installation

AUCOTEC assumes the installation of:

- ✗ RUPLAN in a network
- ✗ Connection of peripheral equipment
- ✗ Distributed data storage

☑ Programming

Moreover AUCOTEC can undertake programming for

- ✗ The generation of customer-specific AWT programs
- ✗ The integration of RUPLAN into the IT environment of our customers
- ✗ Standardization concepts and projects



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