

Your Partner for Integrated Solutions

For operating the electric facilities of power supplies, car manufacturing plants or an airport, or for projecting new facilities, you need a professional tool for computer-aided projecting and documentation of the circuit diagrams and schematic drawings. For this tool to map sector- and company-specific processes and the complex interplay between supplier and operator, it must possess a high degree of functionality and flexibility.

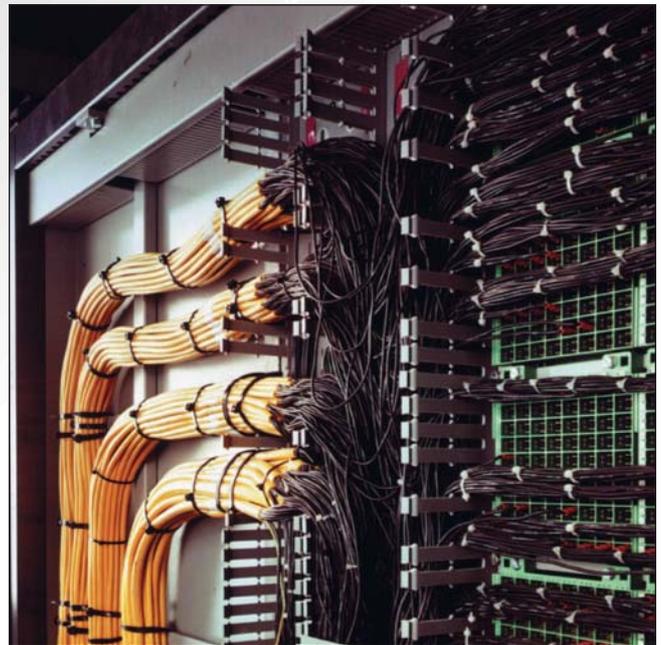
You are however on the lookout for a standard software solution that will meet the technical and organizational requirements of your company still years from now; your partner is supposed to guarantee long-term cooperation and to be a competent contact for all expert and branch-specific questions.

AUCOTEC offers you the solution. By long-standing experience in the area of electric CAE we have developed, apart from the modular standard software product package RUPLAN, branch-specific solutions and interfaces for the various applications used in electrical design and projecting. At this stage over 4,000 users employ our true-to-gage standard software solutions. On demand we offer you competent project and service support from one source as a supplement.

In cooperation with you we further improve the performance of our software components and will take your wishes and suggestions into account for their future development.

With strong international sales partners, we follow the trend of the globalized markets and are locally present in other languages.

We are looking forward to cooperate with you!



The RUPLAN Product Family

The name RUPLAN stands for: **RechnerUnterstütztePLAN-erstellung** (German for Computer-Aided Plan Creation). RUPLAN is an intersectoral, complete solution for E-CAE. Wherever plants, devices or equipment are designed, RUPLAN proves itself as tool for projecting, documenting and managing voluminous circuit diagrams and schematic drawings. Due to the open modular structure, RUPLAN combines the strengths of modern software technology with application-specific know-how. The result: A comprehensive standard software package for electric CAE that paves the way for customer-specific solutions.

Higher Efficiency through Intelligent, Flexible Solution

The RUPLAN product family follows a consistent philosophy. The basis for this are the electrical standards, which enable



a high degree of standardization and thus a more efficient mode of operation in the technical office. The international standards that have been valid for a number of years are actively supported by RUPLAN even today.

RUPLAN provides databases, libraries and forms that are easy to handle via a graphic user interface and create a uniform data stock for all diagrams.

With RUPLAN you create error-free documentation, which relieves the designer of time-consuming routine work. Integration capability here means: Projects are holistically structured, and work sequences are optimized over several areas and even companies.

Unlike conventional CAE solutions, RUPLAN is an intelligent system that covers not only graphical but also logical diagram structures in its data model. Therefore RUPLAN can carry out online error checks. RUPLAN automatically determines



whether an incorrect symbol has been used for a device, whether there is a dual assignment, whether incorrect terminal assignments have been used and many other things besides. Moreover potential and device cross-references or contact connector designations spanning several sheets are automatically created. RUPLAN generates various derived documents such as terminal diagrams and resource schedules automatically from the circuit diagram.

High Functional Usability

In addition to these basic functions, the RUPLAN product family consists of a number of modules that meet the respective special requirements of individual areas of application. Thus RUPLAN is a powerful tool not only for electrical engineering applications. Circuit diagrams and schematic drawings in the areas of hydraulics and pneumatics, pipeline and instrumentation diagrams in chemistry and process engineering can also be created professionally. The components are geared towards a working method conforming to standards and offer



universal support. Therefore RUPLAN can be used to display and edit general function diagrams as well as specific circuit diagrams and schematic drawings.

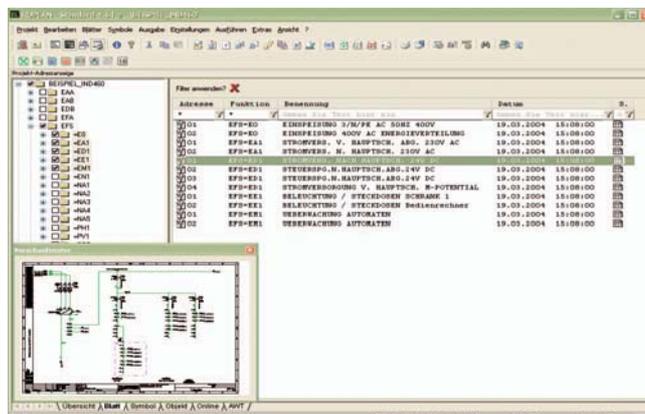
Integration Through Open Concept

RUPLAN has been designed as an open system in order to enable integration of CAE solutions into existing IT worlds and to permit connection to other information systems. RUPLAN is available for common PC's running under Windows NT, 2000, XP and Windows Server 2003. It can be centrally installed on a server as multi-user system or can be remotely networked.

Open interfaces (VNS, DXF, DWG, PDF, IGES and a user-configurable ASCII format) enable life cycle support over all phases of a plant, from construction to disposal.

Modern, State-of-the-Art WINDOWS User Interface

As a consequence of long-standing, continuous realization of customer demands RUPLAN has evolved into a modern, intuitively operable system. Thus the system can easily be learned also by new users and can quickly be used productively.



Project Solutions

RUPLAN's comprehensive functionality, flexibility and integration capability enable the efficient creation, documentation and editing of circuit diagrams and schematic drawings. The capacity of the system is moreover illustrated by the suitability of RUPLAN as integrated standard tool for a broad range of applications: Customer installations range from the automotive industry to energy supply companies.

Independent of your industrial sector, RUPLAN offers you essential advantages:

- With RUPLAN you take advantage of a uniform method of operation both for manufacturers and companies that operate plants. This saves time-consuming and cost-intensive double acquisitions and quality checks.
- RUPLAN provides you with a uniform, standard-compliant data stock, which avoids contradictions, redundancies and errors.
- Smooth exchange of documentation enhances the efficiency of diagram creation and editing.
- Automatically generated derived documents and the execution of checks enable error-free and qualitatively superior documentation.
- The non-paper data exchange between operating company and plant manufacturer improves the communication between all persons concerned.



One of the most important factors for the success of a software solution is the ease and speed with which the programs can be incorporated into the company-specific processes. RUPLAN enables smooth customizing and quick adjustment of the system to user demands via:

- Openness and hardware independence
- Modules with comprehensive functionality
- Programming interface (API) integrated into the system

RUPLAN moreover offers you a package of tailor-made branch-specific solutions. The optional RUPLAN modules are tailored to the requirements of individual industrial sectors and areas of application. They comprise projecting guidelines, standards, special functions, extensive symbol and object libraries as well as automatic check routines.

Full Service for the Electrical Documentation at DaimlerChrysler Rastatt

The competitiveness of AUCOTEC shows not only in the product family grouped around RUPLAN but also in the range of services offered in the surroundings of these products. Thus our range of services has for a long time included product maintenance, training courses, counselling, integration of RUPLAN into other IT systems and customer-specific adjustments of our offering.



This range of services has been considerably expanded early on. In the framework of a full service offering we also offer our customers the assumption of all activities concerning electrical documentation including integration of external suppliers.

Such a project has e.g. been carried out for the DaimlerChrysler Rastatt plant. There the Mercedes A class is manufactured. For the then new plant, about 150 facilities with sizable electrical documentation were installed by a large number of subcontractors. The result of this project is a uniform electrical documentation that is consistent for all facilities, is structured according to similar considerations and can thus be used for

maintenance and servicing of the plant in a consistent, easily comprehensible system.

For this project, the basic data stocks (symbols and devices) were designed, standard diagrams were created according to functional groups, and a projecting guideline was developed. Automatic check routines were developed that check the generated documentation for guideline conformity.

All subcontractors were provided with a complete package consisting of RUPLAN, the Rastatt data stock and evaluations, the projecting guideline plus instructions concerning the method of operation intended for Rastatt. A project hotline was set up by our staff members.

In 2003 an online coupling to the Rastatt SAP system was installed. In this way functional locations and documentation master records are automatically generated from RUPLAN



whenever subcontractor facilities are accepted. Every employee of the plant maintenance department can use SAP to obtain information on the current status of the facility via RUPLAN/View.

The demand for higher-quality services for integrating different IT systems shows with ever-increasing frequency in all large projects where a large number of subcontractors are to document electrical facilities according to uniform standards and where the data delivered in this context is to be used for further processes such as maintenance.

Electrical Documentation according to New Standards

Since the year 2000, the former known electrical engineering standards such as DIN 40719 or DIN 40900 are no longer valid. They were replaced by new international standards.

These standards influence the structuring and documentation of electrical engineering systems to a considerable extent. The main new standards 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.

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

RUPLAN is the first CAE system the actively supports the new standards. A large number of new RUPLAN functions help the user in his work. Moreover the former methods of operation are supported as well. The user can specify for each project which standards he wants to use for the documentation.

Branch-Specific Solutions/Modules



RUPLAN Standard

The building block for the electrical engineer. You use it for the totally system-supported creation of circuit diagrams for an electrical system at the graphic workplace. RUPLAN is based on an object-oriented data model. Therefore you always have an up-to-date overview of all components used as well as their components and views. Errors such as excessive allocation of a device or use of incorrect symbols are avoided from the outset.

All accompanying documents such as parts lists, terminal or cable diagrams are created automatically.

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.

The redlining entries are evaluated by RUPLAN Standard and selectively offered to the user.

RUPLAN/View offers the full scope of navigation functions.

EVU Module

The creation of standard-compliant circuit books for power generation and distribution is the main task of the RUPLAN sector solution for power companies (EVU). The uniform, standard-compliant data stock ensures that plant manufacturing and operating companies cooperate efficiently and are able to communicate electronically.

The standardized method of operation is described in a set of rules. The finished documentation can automatically be checked for compliance with the rules.

The RUPLAN module automatically creates various derived documents such as terminal and connector diagrams according to EVU standards.

The RUPLAN/EVU module is developed according to the specifications of an open workgroup made up of power companies, plant manufacturers and engineering companies. It is used by almost all major power companies and municipal utilities and is stipulated as quasi standard.

RUPLAN Water Management Module

Like the EVU module, the water management module is a sector solution tailored to the needs of water management; it consists of guideline, data stocks and program functionality.



RUPLAN/KABI

In vehicle construction and especially for trucks and special-purpose vehicles, cables, cable looms, appropriate plugs and accessories play an important role.

KABI is a unique sector system and is based on RUPLAN. With KABI the entire wiring harness development process, from the circuit diagram via the topological plan and the wiring harness diagram to the true-to-scale mounting plate diagram, is supported by a uniform system.

Moreover there are bidirectional online interfaces to 3-D mechanical systems (CATIA V4 and V5, PRO/E, Solid Works) as well as couplings to cable manufacturing automats.

RUPLAN/LOC

RUPLAN/LOC has been designed for the rail vehicle industry. The branch solution makes special allowances for the special wiring and cabling systematics.

PLC Module, Coupling to Hardware Projecting Systems

During plant projecting, data is created both in the RUPLAN and the PLC systems. The add-on module couples common programmable logic controllers (PLC) to the CAE system RUPLAN. This means that data can be transferred, checked and updated. Circuit diagrams can be generated automatically. The input required for the assignment lists is reduced and errors during data transmission are avoided.

With the Hardware Configuration Link (HCL), a bilateral data exchange has been realized especially for the Siemens S7 systems.



Cabinet Module

Electrical resources are supposed to be arranged in a cabinet as compactly and clearly laid out as possible. The RUPLAN module "Cabinet" facilitates this documentation task by means of true-to-scale 2-D representations that permit easy recognition of collisions and a complete electrical documentation. The module creates error-free, dimensioned layout diagrams for the workshop and the assembly and provides for a quick overview of the required location.

DXF/DWG Module

Due to the widespread use of AutoCAD, the DXF/DWG format has become a standard for the exchange of graphics data. The functionality of the bilateral RUPLAN interface vastly exceeds the transmission pure pixel graphics. It can to

a large extent be configured for different AutoCAD versions or methods of operation.

Standard Interfaces

RUPLAN is equipped with a number of standard interfaces: ASCII, TIFF, PDF, VNS (neutral interface for data exchange between ECAD systems), IGES.

In addition it is possible to access various labelling systems for item designations and cable numbers e.g. from Phönix, Weidmüller, Murr Plastic.

Hybrid Module

The hybrid module enables the integration of drawings or graphics in the TIFF format (monochrome or colour) as well as in the JPG or BMP format. In this way scanned drawings can be adopted into the RUPLAN management and can be changed using RUPLAN means.

It is also possible to integrate photographs or logos into the RUPLAN drawings or symbols.

Integration into Management Systems

The integration of RUPLAN into management systems (EDM, PPS, PLM, ...) offers a considerable potential for rationalization beyond departmental borders of your company. From document management to various workflow functions, RUPLAN can be integrated into leading systems.

With the Communication Framework, RUPLAN offers the currently most powerful and open online interface to the PLM system from SAP. This can be used for bidirectional adjustment of master data and parts lists, the creation of document master records and functional locations. This configurable interface can be quickly and smoothly adapted to individual and company-specific requirements.

Automation

RUPLAN is can be automated to a large extent. Documentation with a high degree of standardization can be created fully automatically. With its powerful API language, RUPLAN here offers solutions for every conceivable requirement, solutions that can be realized by your own staff after an appropriate training.



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