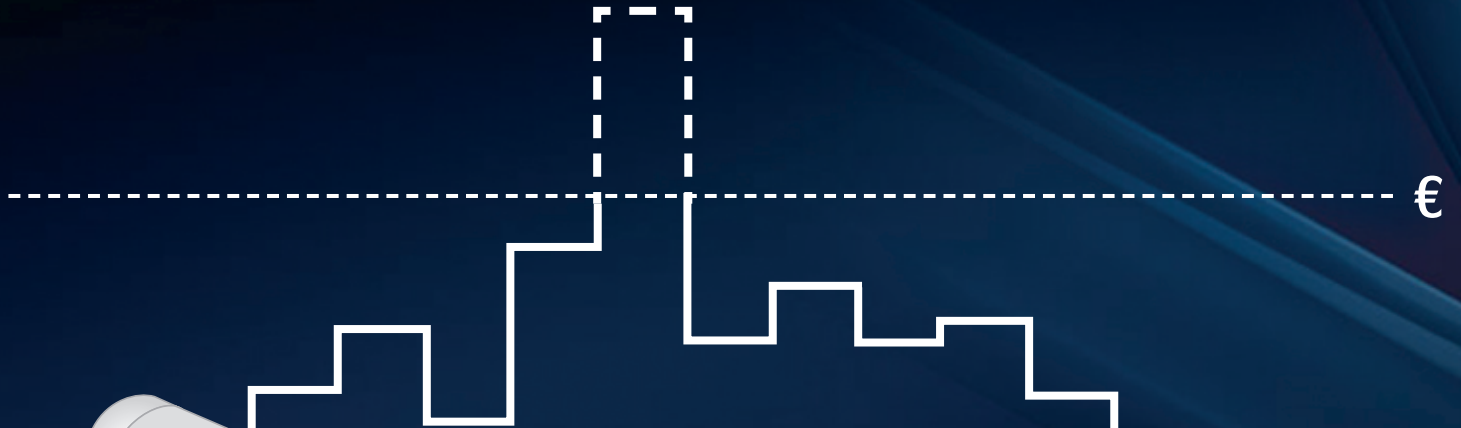
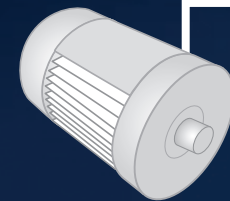


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GMC-I Messtechnik GmbH

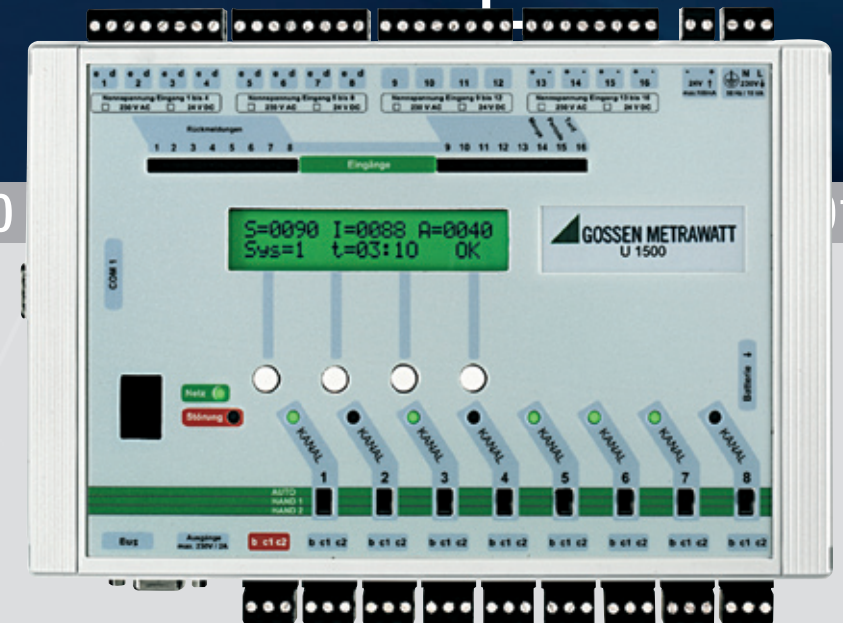
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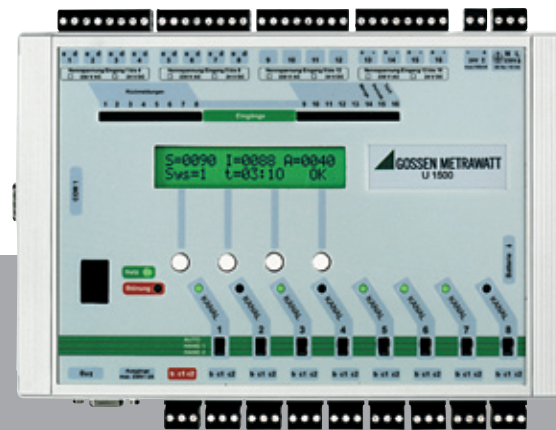
Reducing Energy Costs with Intelligent Load Management

The U1500 intelligent load management system allows you to optimize energy import and thus actively influence your costs.

The rising price of electrical power is not the only factor which is increasing energy costs for industry, the commercial trades and administration. Companies also pay a demand rate for power made available by the utilities – month for month, year for year. However, you can actively influence these additional costs and save considerable sums as a result: You can optimize expensive energy import and avoid import peaks with the U1500 intelligent load management system – in a reliable and sustained fashion.

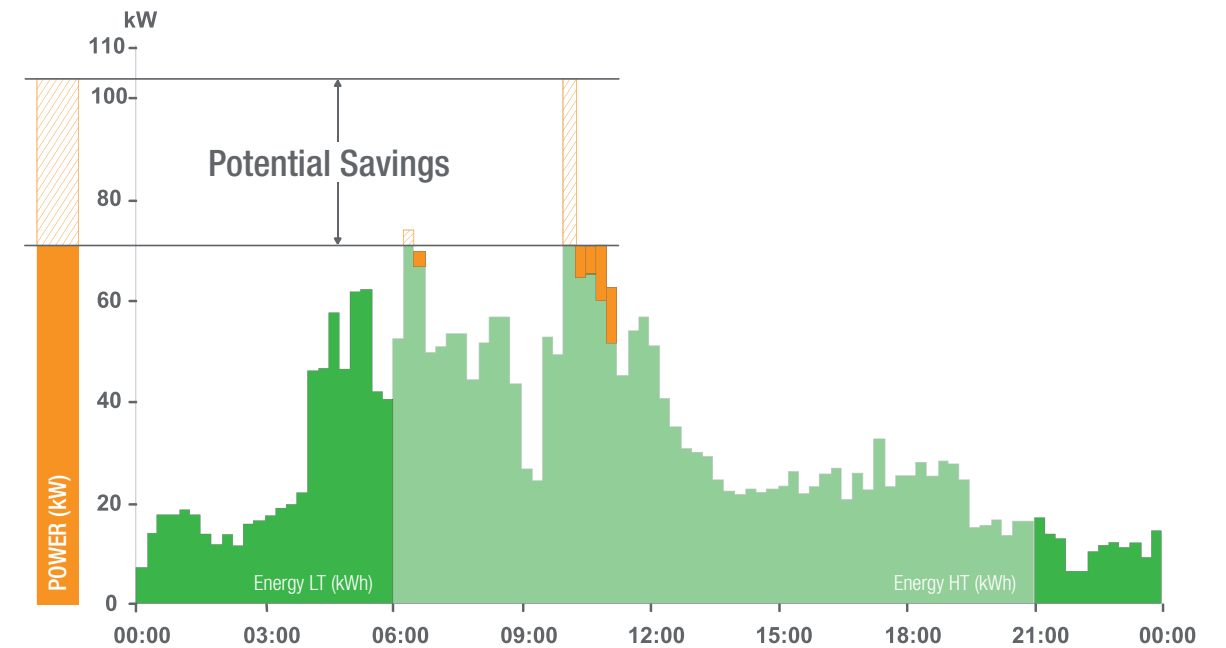
Acute Peak Loads – an Everyday Situation in Many Industries

Cost intensive peak loads occur when things get underway at companies: when production systems are started up and when work begins in administration, as well as after shift changes and breaks. Everything needs power at the same time in these situations. Lights, heaters, air-conditioners, IT systems, pumps and drive units all contribute to expensive peak loads at these times.



Features

- Modular system, 8 to 64 optimizing channels
- Simultaneous optimization of up to 4 media or billing points
- Minimal intervention thanks to combined trend/extrapolation procedure
- Operating state and consumer performance are taken into consideration
- Adherence to necessary power consumer control conditions
- Automatic priority recognition or external demand request
- Universally adjustable shutdown priorities
- Flexible setpoint management
- Differentiated timer programs for shifting energy requirements
- Special control programs for kitchen optimization
- Load controlled activation or analog control of in-house generators
- Local configuration and data retrieval via LCD and function keys



15 Minutes May Make the Difference

Peak loads have an economic effect which goes far beyond the current moment, because in addition to the kilowatt hour rate for actually consumed energy, power supply contracts also stipulate an additional demand rate for power which is made available – and this can easily result in a cost explosion. As a rule, the power utilities invoice the demand rate price on the

basis of 15 minute mean values. The highest measured 15 minute value is in turn used as the basis for the entire month or annual invoice, depending upon the contract. This means that a single peak results in higher electrical power costs for the entire billing period.

Power costs account for 25 to 50% of the overall electric bill. And that's reason enough to get them under control once and for

all – with the U1500 intelligent load management system. It works on the basis of the following principle: It's better to level off demand for 15 minutes than to pay too much all year.

U1500 – Eliminating Peak Loads with High Performance Functions

The U1500 intelligent load management system keeps energy import permanently under control – it's always a step ahead of peak loads and is capable of reacting in a precise fashion. Individual pieces of operating equipment are shut down and regulated with respect to power demand, or existing in-house generators are brought onto load without any appreciable impairment of operating procedures. With the help of a timer program, power consumption can be limited and the potential peak period can be shifted into the off-peak period.

Reliable Balancing for Constant Production Power

Power consumers are controlled individually with adherence to minimum and maximum on and off-times. The system acquires power consumer operating states, and is thus capable of automatically recognizing critical production conditions (e.g. warm-up periods). Corrective measures are implemented by the computer in such cases in order to prevent the respective piece of equipment from being shut down, or to reduce off-time.

Efficient Setpoint Adjustment

As opposed to many conventional maximum-demand monitors, the system is capable of opening up new potential savings which will be offered by the liberalized power markets of the future by means of differentiated setpoint management. For example, this includes the use of energy schedules. Up to 36 setpoints per day can be optionally entered to the system for 365 days a year, and setpoint profiles can be entered with the help of Excel spreadsheets. The setpoint can be automatically adjusted at any time. If the setpoint is exceeded, the new peak value can be retained as a setpoint for the rest of the billing period in order to take full economic advantage of the more expensive maximum demand which thus results.

Intelligent Management

Comprehensive functions provided by the U1500 optimizing computer tackle all conceivable optimizing tasks related to peak load management. Binary operating feedback allows for precisely timed switching operations for each connected piece of equipment. Manual intervention can be executed by means of integrated, manually operated switches, or external demand request signals. Maximized savings with minimal influence on the production process is accomplished by means of a special trend/extrapolation procedure and differentiated control strategies.

The Right Solution for Every Facility

The U1500 A0 optimizing computer functions as an autonomous unit with 8 optimizing channels. The U1500 A1 optimizing center with system bus interface is used for mid-sized to large production facilities. Systems with up to 64 optimizing channels can be set up by means of decentrally connectable system expansions for 8 optimization channels each with the U1500 A2. If this is not enough, several systems can be combined.

Four Billing Points, One Device

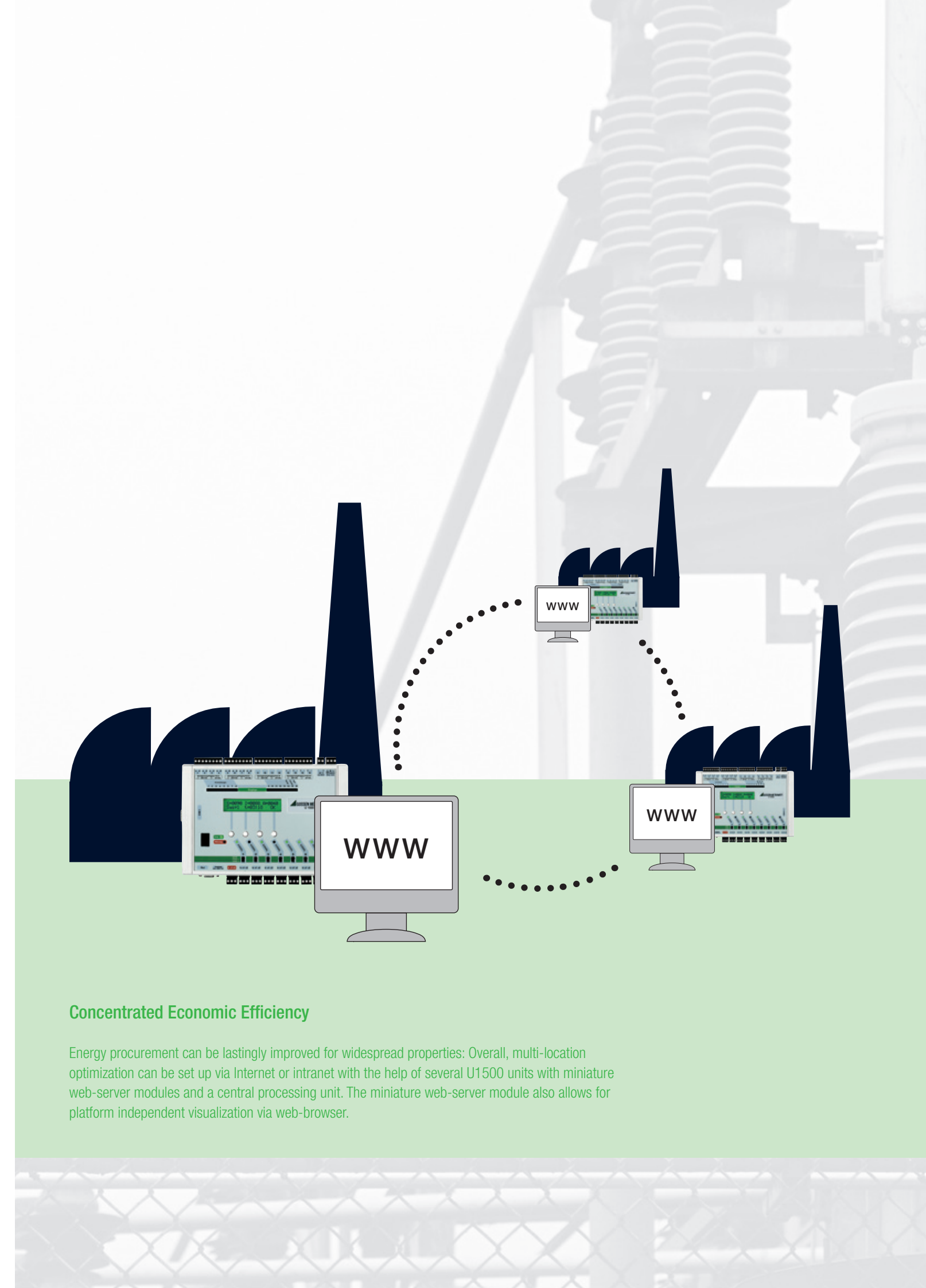
The capacity of a single U1500 optimizing computer covers up to four billing points or media with different integration period durations. In this way, for example, a 15 minute period at the network service provider, a 30 minute period at the power utility and a 60 minute period at the gas supplier can be synchronously managed.

Optimizing Energy Import in Large Kitchens

Special controller programs which take typical operating characteristics of stoves, ovens, refrigerators and cleaning appliances into consideration are available for optimizing energy import in large kitchens. Critical power consumer situations are automatically detected, whereupon shutdown priorities and off-times are dynamically adjusted.

Useful In-House Power Generators

During isolated grid operation, load optimization protects the in-house power generator from overloading, and increases operating safety. The integration of in-house power generators into the optimization concept is optionally made possible with load-controlled regulation.



Concentrated Economic Efficiency

Energy procurement can be lastingly improved for widespread properties: Overall, multi-location optimization can be set up via Internet or intranet with the help of several U1500 units with miniature web-server modules and a central processing unit. The miniature web-server module also allows for platform independent visualization via web-browser.

PC Software for Special Additional Functions

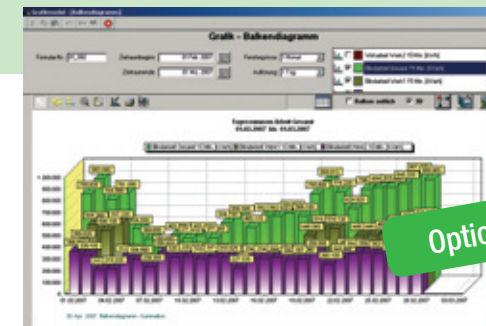
Optional software packages provide interested users and energy consultants with useful, additional functions for autonomous U1500 load optimizing systems.

As a standard feature, each of these software packages includes basic functions for up-to-date, professional data management. These include convenient data management with MS Access, export of arrays to MS Excel, insertion of graphics and tables to MS Word and transmission of data via public communication networks. Data stored at the PC can be accessed simultaneously from various workstations via the intranet. All software packages include basic modules for data transfer, signal configuration and channel monitoring.

System requirements:
Windows 2000, XP or Vista

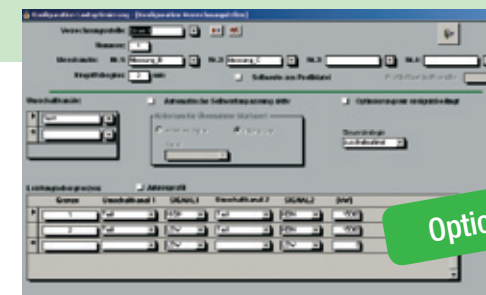
Graphic Data Analysis Module (Z302B)

This software makes it possible to evaluate all archived data such as load characteristics and switching operations both graphically and in tabular format. It supports the generation of daily, monthly and annual maximum values, as well as corresponding mean values and sums. Furthermore, data can be processed which have no optimization relevance such as reactive power, power factor and underconsumption. Once they've been initially created, graphic configurations can be saved for recurrent use.



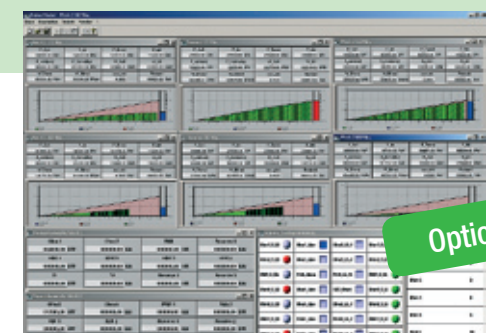
Load Optimizing Configuration Module (Z302C)

All of the settings required for the optimization computer can be conveniently entered at the PC, stored to memory, displayed, printed out and transmitted to the U1500.



Online Display Module (Z302D)

This software package assures transparency during the current optimization period. Power data and switching statuses for interconnected operating equipment are displayed online.



Developed in Dialog, Effective in Actual Practice

Consulting

The most important prerequisite for successful load management is a detailed analysis which makes load characteristics apparent and ascertains all operating requirements. An experienced and competent partner is required to this end: The specialists at Gossen Metrawatt have many years of experience and know-how in the field of energy optimization, and can provide you with comprehensive consultation.

Analysis

In consideration of individual basic conditions, we mutually develop an optimization concept together with you, determine the efficiency of individual measures and evaluate their economic impact.

Implementation

If you're convinced by our optimization model, you receive a concept and a turnkey system from a single source. Upon request, Gossen Metrawatt can operate the optimization system for you as well, and make any necessary adjustments.

You concentrate on your core business activities – we reduce your energy costs!