



# energized: zenon energy edition.

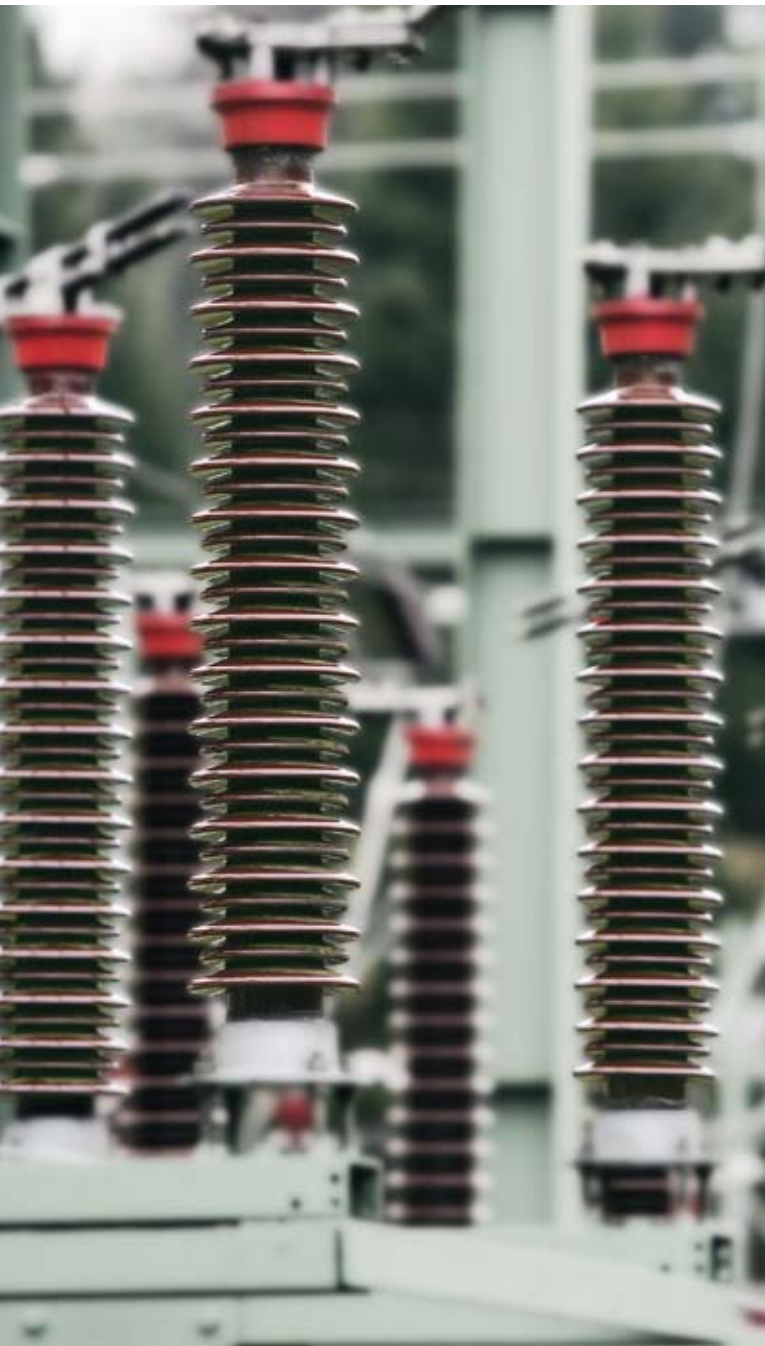
RELIABLE SUPERVISION AND EFFICIENT  
CONTROL OF ENERGY PLANTS,  
DISTRIBUTION NETWORKS AND SUBSTATIONS.



**zenon**  
do it your way

# introduction.

MINIMIZE EXPENSE, INCREASE PRODUCTIVITY.  
SATISFIED CUSTOMERS WITH ZENON ENERGY EDITION.



First things first: It makes a difference which software you use to maintain a clear overview of energy production and energy distribution facilities, particularly if you consider reduced maintenance effort and satisfied customers to be important. The difference shows in the small details, which combine to have a great effect. For example:

## PARAMETERIZING INSTEAD OF PROGRAMMING.

Many programs are still based on programming and bespoke scripts. zenon works differently. zenon is the multi-award-winning Energy Automation System that has won the Frost & Sullivan Innovation Prize in 2007. With its consistent object orientation it is not only convincing to expert opinion such as Frost & Sullivan but also to users who work in many sectors all over the world. When applied it means that you as the system integrator do not need to keep programming the same features for each and every element; instead you set values once, allocate them to objects and then easily use them at any time by point-and-click. This is only one of many useful differences to traditional systems.

For example, we have full integration in all windows platforms. We have shared, secure working on the internet, zenon is Certified for Windows Vista, and security is at the push of a button.

Importantly zenon is independent, it is completely up to you which hardware from which manufacturer you choose to use in free combination. zenon works with all products.

The enhanced security of the type that pharmaceutical and food production companies have been gaining with zenon over a long period of time is also available and is a great advantage to the energy industry – and all it takes is a single mouse click.

## ZENON ENERGY EDITION HIGHLIGHTS

- Diversity:** IEC, DNP3, Modbus... communication and status processing
- Integration:** Flexible PLC Core straton logic engine
- Security:** Secure command processing
- Overview:** Topological coloring
- Supervision:** Topological and process interlocking
- Information:** Picture Alarming – acting quickly and effectively
- Projection:** zenon Energy Management System renders enhanced data
- Network:** Distribution of tasks, availability through redundancy.
- zenon basics:** Alarms, world view, monitor administration, trending, symbols, archives with SQL server, message control, web server

## FIND OUT MORE!

Words can only give you an idea, and pictures will support. However, here we show you what zenon Energy Edition achieves in your projects, what we actually prefer is demonstrating it to you through direct application. Thereby your questions can be answered immediately and you can check with your own projects how you and your customers would benefit from zenon Energy Edition. Send us an e-mail and experience how quickly zenon Energy Edition, together with professional assistance, is delivered to you. [energy@copadata.com](mailto:energy@copadata.com).



# communication and status processing.

“KNOW-HOW” ENSURES SECURITY, PERFORMANCE AND AVAILABILITY.  
IEC DRIVER AND STATUS PROCESSING.

The basic tool of any Energy Automation System is the ability to communicate. It doesn't matter what kind of device is connected, whether it is a Protection Relay, an BCU, an RTU, etc, zenon Energy Edition has excellent communication. You will benefit from our tailor-made drivers and direct access to important expertise as well as many years of experience.

## IEC DRIVER

COPA-DATA attaches great importance to the basic functions of its Energy Automation System. Specialists with know-how in the respective areas develop every connection for zenon. There are no deviations, no third-party providers, no purchased libraries, no superfluous interfaces – no matter whether IEC standards 60870, 61850 or the DNP3 standard is concerned, it is compliant, fully.

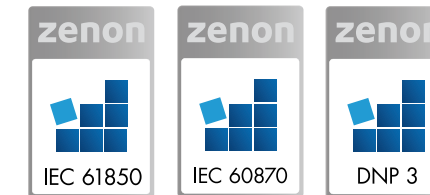
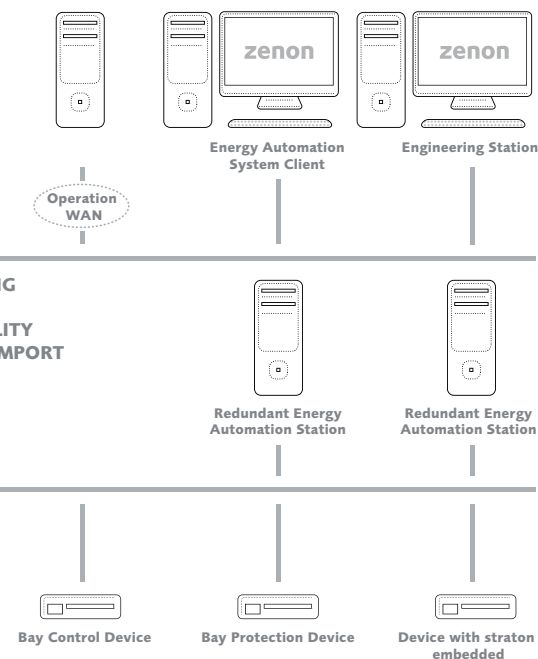
This particularly involves the IEC 61850 driver, which was developed in-house, and the aspect of the security-relevant issues such as 'Select before Operate' or 'File Transfer', which make sure you will not lose any critical data.

GATEWAY / IEC 60870 / IEC 61850 / DNP3

GRAPHICAL TOPOLOGY  
TWO STEP COMMAND PROCESSING  
TWO HAND OPERATION  
INTERLOCKINGS  
PICTURE ALARMING  
ENERGY MANAGEMENT SYSTEM  
DRAG&DROP HANDLING  
...

COT/STATUS HANDLING  
REDUNDANT CONNECTION  
FILE TRANSFER  
SAE  
TIME SYNCHRONISATION  
...

IEC60870 101/103/104  
IEC 61850  
DNP3  
MODBUS  
...



## INFORMATION IS READILY COLLECTED BY DATA POINTS

Particularly in critical fields of applications security is not only a question of operation but also of comprehensive, correct and clear communication. So systems must provide quality information, it is also at least equally significant to the actual process status of various applications. Users should have easy access and be able to evaluate it quickly and effectively.

zenon Energy Edition not only supplies each data point with its particular value but also with the respective quality information and a time stamp; this is done automatically and does not require any attention from the user.

It does not matter whether IEC conform status bits or 'Cause of Transmission (COT)' information needs to be communicated.

The specially developed COPA-DATA drivers and integrated status processing undertake the basic tasks for you and provide you with additional capability for the development of your applications.

“Is it possible to have a topological display that can also be utilized by standard communication protocols like Modbus? Yes, of course!”

“One-stop shopping” often makes our lives much easier; it also increases productivity – but only with proper implementation and if you can retain the freedom of decision. Therefore COPA-DATA delivers intelligent integration with Energy Automation System Logic (straton embedded).

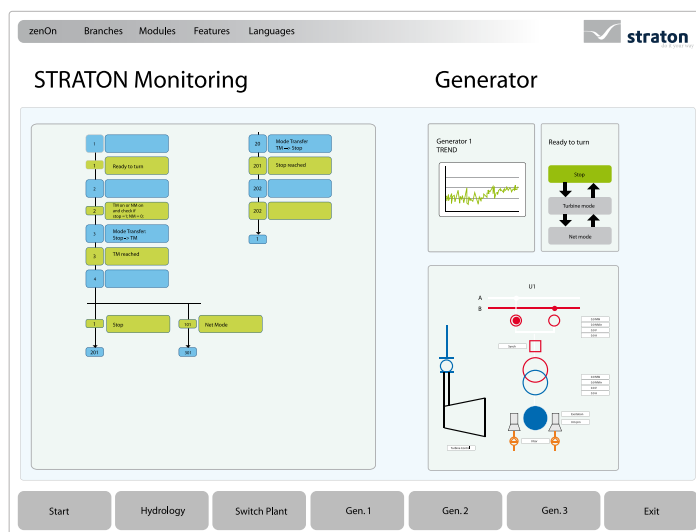
The COPA-DATA Energy Automation System utilizes perfect integration with a PLC system that does not depend on any particular hardware.

# straton.

STRONGER BY BEING UNITED.  
INTELLIGENT INTEGRATION WITH STRATON.

# command processing.

ACTING QUICKLY AND SAFELY.  
SECURE COMMAND PROCESSING.



## ENERGY AUTOMATION SYSTEM LOGIC

straton acts as the Energy Automation System Logic. In zenon straton plays the role of an IEC 61131-3 compatible system and it offers every advantage you might expect from advanced Energy Automation System Logic.

## PERFECTION OF INTEGRATION

The entire straton runtime environment can easily and quickly be embedded on any other hardware platform.

With true integration you create the basis for economical and future-proof structures.

Energy technology defines and demands exact procedures and standards. That may well be – however, this does not mean that you have to accept limitations in your creative choices. zenon consistently implements COPA-DATA's motto of 'Keep it simple'. Even complex procedures can be accessed easily and critical areas such as secure command processing can easily and safely be configured.

In secure command initiation zenon Energy Edition makes full use of its key strengths: each command can be defined individually as to whether the command execution should be double stage or single stage. This parameter is set once and the system incorporates any changes automatically, without any additional input. The realization of two-hand operating in a software environment is equally easy. What if the requirements change within the plant? No problem, simply change the parameters once. While the plant continues running but with the changes without stop or failure.

zenon Energy Edition goes beyond secure command initiation and also takes process interlocking and topological interlocking into account. *See page 10.*

zenon Energy Edition provides safety in the entire application; in the networking and in distributed engineering – safety first!

# topology.

SEE IMMEDIATELY WHAT IS HAPPENING.  
TOPOLOGICAL COLORING.

Having a graphical overview is a precondition for safe working. The easier that you can provide an overview, the better it is for the user. Make sure your users can immediately see any relevant information in the topological model.

With zenon the graphical elements of the process visualization already include the entire topology model. You do not have to program any extra lines of code. Therefore you save time and energy – and deliver an overview and security.

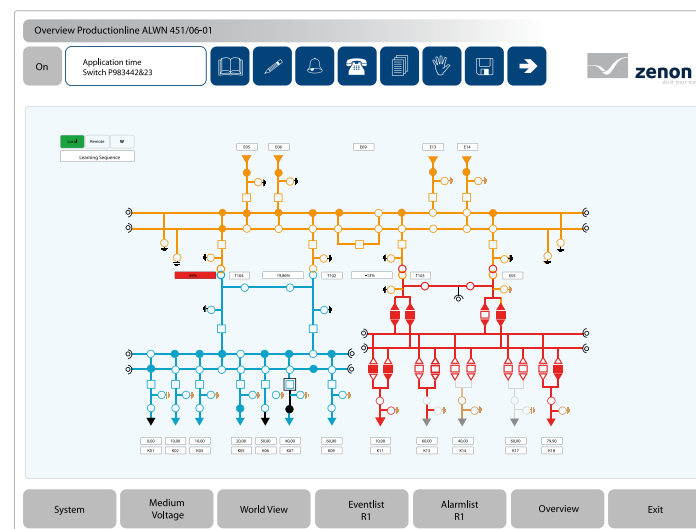
zenon was specifically designed to offer simple operation. Complex functions and sophisticated technology are integrated in an interface which can be operated intuitively. For topology this means: zenon includes fully configured process engineering elements or in other words zenon offers full topological functionality simply from graphic elements. With a simple mouse click on the respective element the user determines its behavior and simultaneously models the topological network with its visual elements.

## MORE THAN INTERNATIONAL STANDARDS

Neither standards nor perfect systems are the decisive factors for practical use, but unlimited, flexible application in a real work environment is. This is reflected in zenon's conceptual design; it also

supports you with its intelligent architecture and high integration capabilities. It is your decision which environment you include in a topological model. zenon meets all international standards – but does not restrict you to them should you wish to integrate an extra component to the model. In this case you can use one of more than 250 top quality zenon drivers.

With zenon we provide you with the freedom to decide for yourself which hardware environment or protocols you want to use. zenon Energy Edition completely supports you with its Global Topological Model.



“Secured command initiation is not restricted to IEC standards if you work with zenon Energy Edition.”



# topological and process interlocking.

RIGHT DECISION, RIGHT ACTION.  
TOPOLOGICAL AND PROCESS INTERLOCKING.

Complex networks are difficult to manage by one user alone. Clear and concise visualization is good, but real help for important decisions is much better. Both are inherent to zenon. As a flexible, configurable system it particularly takes individual processes into account. This means:

zenon helps the user to make the right decisions in critical situations and makes sure that incorrect operation cannot occur.

## TOPOLOGICAL INTERLOCKING

Topological interlocking clearly shows the user the consequences of any operating decision. zenon Energy Edition independently calculates the effects of every switching operation on the overall topological network.

In zenon's Global Topological Model such interlocking ensures that accidental conditions in the network cannot occur. The interlocking 'voltage versus ground' for example prevents a short circuit in the entire network. This and more conditions are activated by a single mouse click.

## PROCESS INTERLOCKING

In case topological interlocking is insufficient for your plans, you can define process interlocking. You can define them and adapt them to your specific needs, so that you can even control complex conditions and sequences.

Topological interlocking and process interlocking are important support tools for the user. They eliminate accidental switching operations during operation and considerably enhance plant safety and availability.

# picture alarming.

REACT IN TIME. PICTURE ALARMING.

Colorful pictures by themselves are not enough for good alarming, particularly so if the plant operation produces more alarms than an operator can handle. It is important to help users gain an overview and to safely and systematically lead them to root fault sources and solutions.

zenon Energy Edition provides you with flexible and efficient alarming and systematic user guidance.

## ALARMING

With zenon Energy Edition you define additional categories or areas for each alarm signal. They are used to represent the real environment. Additionally, you provide users with the necessary overview.

Then zenon quickly and directly leads you to the source of the problem. Thereby you divide your applications into areas and visually evaluate them. The graphical user guidance directly leads the user to the source of an alarm signal.

The convincing strength of zenon picture alarming is in its high degree of flexibility and its broad range of application.

It is a pity that a lot of valuable data is not utilized. Every modern system collects data – some important some less important. But wouldn't it be better to analyze and utilize data immediately, to produce information and so to constantly optimize facilities? Just think of having reliable peak load projections at the right time.

zenon Energy Management System turns data into valuable information, as zenon not only collects data but enables real-time analysis. This means: Minimizing risks and optimizing processes.

# energy management system.

**EFFICIENT USE AND ANALYSIS OF DATA.  
EMS – THE ZENON ENERGY MANAGEMENT SYSTEM.**

zenon is much more than a Energy Automation System. The result: reliable forecasts through real-time analysis and therefore a lot of room for optimization and prognostic actions, allowing plant operators to run the plant on the basis of the latest process information. EMS also conveniently helps to meet contractually defined limits of performance. Projection and automated switching operations avoid exceeding peak demands and thus save costs.

For the electrical sector the projection usually reviews over a period of 15 minutes. For gas networks this range can be extended to 60 minutes. The peak load projection renders forecasts of the projected performance process for these periods of time. Based on this the system allows fully automated cut-off of end users or the addition of suppliers, taking freely definable critical values into account. The result of every optimization is immediately transferred to the peak load projection. The user can always view the current state.

The zenon Energy Management System provides comfort and reliable support in the administration and optimization of sensitive procedures. Decisions are made in time, based on sound information. Security and economic management benefit equally.

# the zenon network.

**IT'S GREAT WHEN DATA ALWAYS ARRIVES SAFELY.**

How would you feel, if you could be sure that data would never be lost, not even if all of a sudden a server failed? If you knew that complex, high performance applications were running, but the data traffic would not overload the network? If you even knew for sure that your application worked on every platform?

zenon Energy Edition provides performance even in the remotest point of the network, via WAN to remote stations. It uses circuit redundancy to guarantee 100% data security. With its SNMP server it even enables continuous control of remote applications.

At the push of a button zenon network technology provides a complete solution for all desired platforms from Windows XP to Vista, Server 2003 and 64 bit systems. Operators benefit from consistent plant availability and virtually zero downtime through the intelligent redundancy concept. zenon's 'surge-free redundancy' sets new benchmarks in data security and availability. Server failures no longer

lead to loss of data, even in the remotest control station all data is available at all times.

Such high-performance technology predestines zenon for use in WAN or WWW networks. If necessary, the data traffic for these networks can be limited to a simple watchdog function.

The zenon network is equipped with everything required to monitor network structures professionally. With the SNMP client you can check any hardware components in the network. Whenever you need to supervise applications, zenon SNMP is your perfect partner. Stable networks with high performance and minimal consumption of resources. Perfect safety with circular redundancy, consistent information about the activities of all applications by means of SNMP servers. zenon makes distributed operations simple and safe.

# overview.

PRODUCTIVITY FROM A TO Z. THE ZENON ENERGY EDITION.

A long series of innovations and practical functionality has resulted in zenon being the insider tip for Energy Automation System professionals for two decades. Some examples are its full integration in all windows platforms, including Vista, or distributed operations within the network; above all its 100% reliability and compliance with the strictest standards and requirements in the fields of pharmaceuticals, food and energy - and all this at the push of a button. You have already become familiar with some features of zenon Energy Edition. However, there is much, much more. For example:

## MONITOR ADMINISTRATION

means seeing what's going on at a glance: Your users are saved from tedious, confusing and error-prone switching between images and lists. With zenon multiple monitor administration you can see all relevant information at a glance. The flexible, adaptive image display enables operating the multiple-monitor system with a notebook. Images can be displayed according to the position of the cursor and placed on the appropriate monitor.

You do not even have to engineer for different screen resolutions, as zenon adapts automatically. Thereby you can avoid unnecessary effort for additional display or administration of different resolutions.

## OBJECT-ORIENTED CONFIGURATION WITH SYMBOL ADMINISTRATION

saves you extra work. Elements and devices are defined only once. They can subsequently be combined to symbols and reused quickly at any time. Intelligent replacement mechanisms guarantee flexible use without any additional effort. Structured data types lead to object-oriented configuration, which saves time.

## ARCHIVE SERVERS / SQL SERVERS

provide logging according to rules and regulations. Technical plants under State or Private control have to provide consistent logging and long-term data management to meet regulatory requirements. Supported by the redundant network, the zenon archive servers guarantee consistent recording of process-relevant data over many years.

Through successive archives users have easy access to such huge amounts of data. The zenon SQL server enables simple integration of external applications and data analysis tools.

“ Those who want to work fast, safely and productively should manage commands centrally and reuse them at any time. They should also be able to manage changes with one click. ”

## ZENON WEB-SERVER

links applications within the company or group of companies, globally provides applications via the World Wide Web without any adaptation. All this is safe, as the zenon Web-Server can be designed in a redundant configuration. You decide for

each individual user which rights he or she has - ranging from a mere observer to an operator with unrestricted access. No matter whether changes in the application or in the user interface are carried out, zenon makes sure that all data throughout the network is always up-to-date.





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# do it your way

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