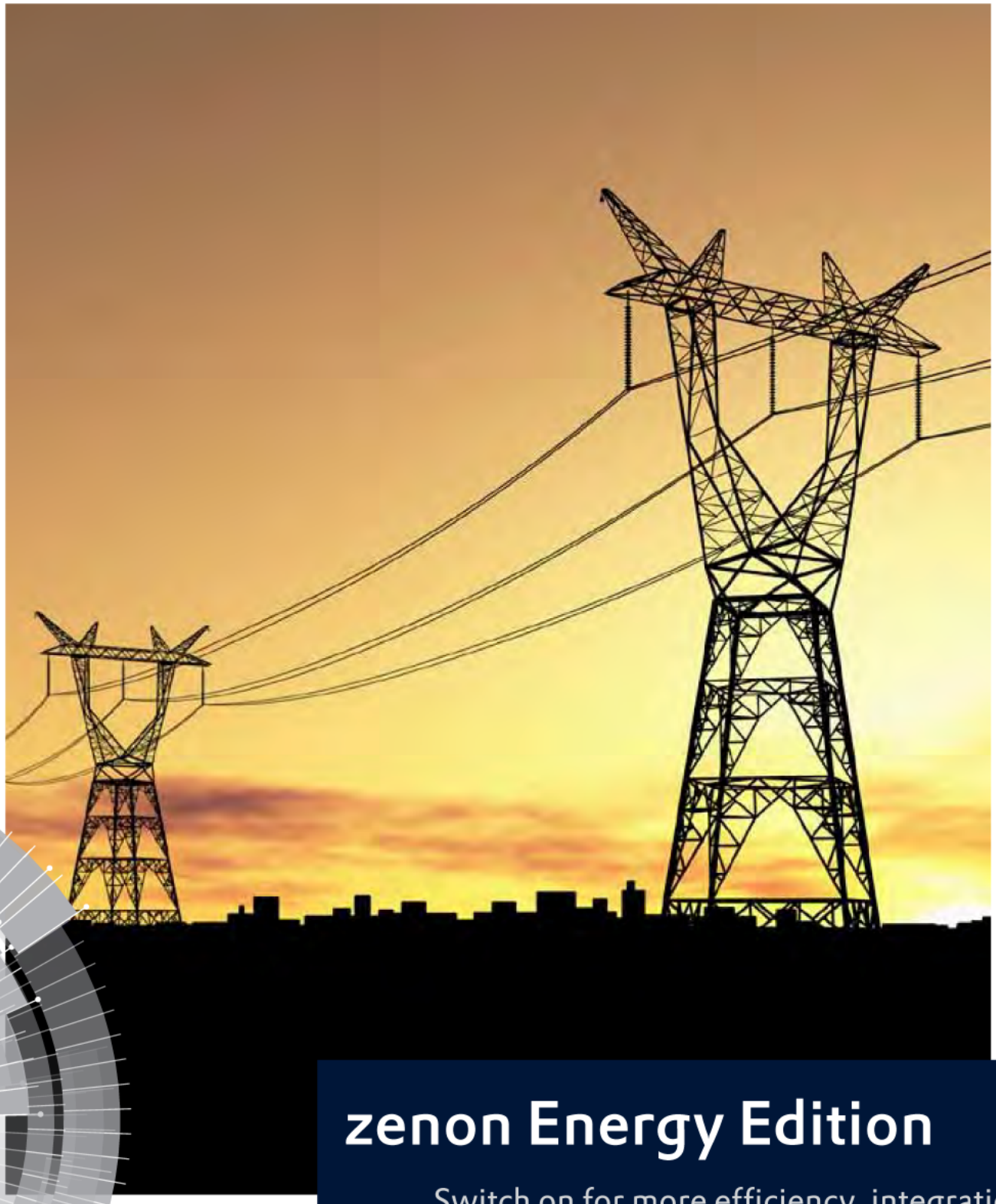
zenon
do it your way

INDUSTRY SOLUTIONS



zenon Energy Edition

Switch on for more efficiency, integration and ergonomics in energy generation, transmission and distribution.

COPA-DATA

COPA-DATA has been active in the energy industry for nearly 20 years. In 2006, we launched the automation software zenon Energy Edition as an edition of zenon, specially dedicated to the needs of the energy industry. With it's IEC 60870 and DNP3 driver, zenon became a well-known player in substation automation. The introduction of the IEC 61850 driver and its KEMA certification was a further important step towards becoming the leading system for communication, visualization and control.

Preface.

COPA-DATA , YOUR RELIABLE PARTNER IN THE ENERGY INDUSTRY.

EXPERIENCE AND KNOW-HOW

Trust zenon for enhanced energy generation and distribution. zenon is proven in:

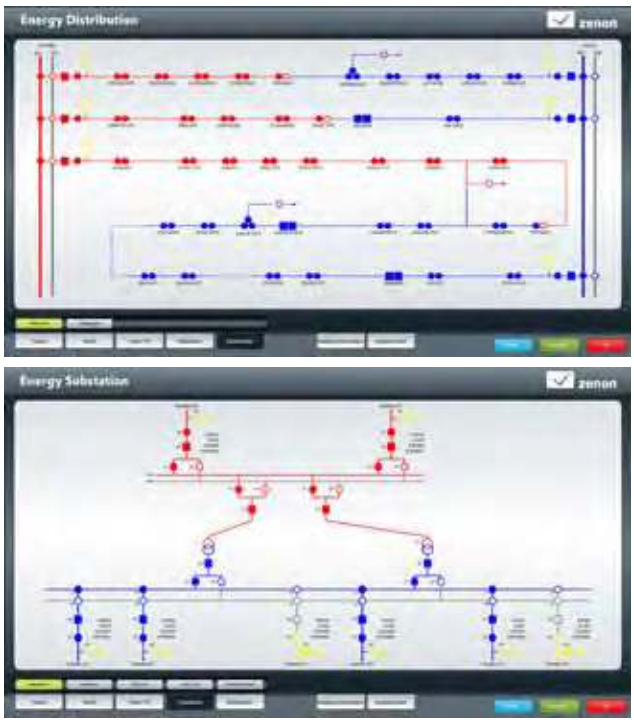
- local control for substations of any voltage level
- in control centers for medium voltage
- in hydro-electric power plants
- for farm management for renewable energy resources (like wind and photovoltaic)

GLOBAL PRESENCE – LOCAL CARE

We're present in over 25 countries, providing local support together with our competence partners, and looking out for your needs. Our headquarters in Salzburg, Austria, takes care of product development and quality management to maintain the highest standards in reliability and security. This is also true for all our drivers and supported protocols. Certificates like the KEMA certificate for our IEC 61850 driver underwrite our quality standards.

CLEAR FOCUS AND STRONG PARTNERSHIPS

COPA-DATA focuses purely on developing world-class automation software. Within the COPA-DATA Partner Community we support our strong network of system integrators and technology partners, thus ensuring the consistent delivery of reliable and secure solutions to all clients.



“Thanks to protocols like IEC 61850, IEC 60870 and DNP3, zenon integrates seamlessly into the control centers. The simply perfect solution to deliver full control and connectivity.”

One product family. One integrated environment.

ZENON COVERS ALL AREAS, FROM HMI/SCADA RIGHT UP TO POWERFUL REPORTING

Use the industry tailored solution to meet all your requirements; from flexible and secure communication, visualization and control, to comprehensive reporting. Save time and money with one integrated solution:

- Use built-in drivers like IEC 61850 for communication
- Create effective HMI/SCADA visualization and control projects
- Prepare powerful reports out of the box
- Configure your gateway for IEC 60870 or DNP3
- Use the SCL Editor for IEC 61850 documents
- Benefit from integrated IEC 61131-3 programming
- Analyze with built-in Data Historian

ZENON ENERGY EDITION

zenon Energy Edition is the industry-specific SCADA solution from COPA-DATA for power plant automation and substation automation, grid control technology and wind park management.

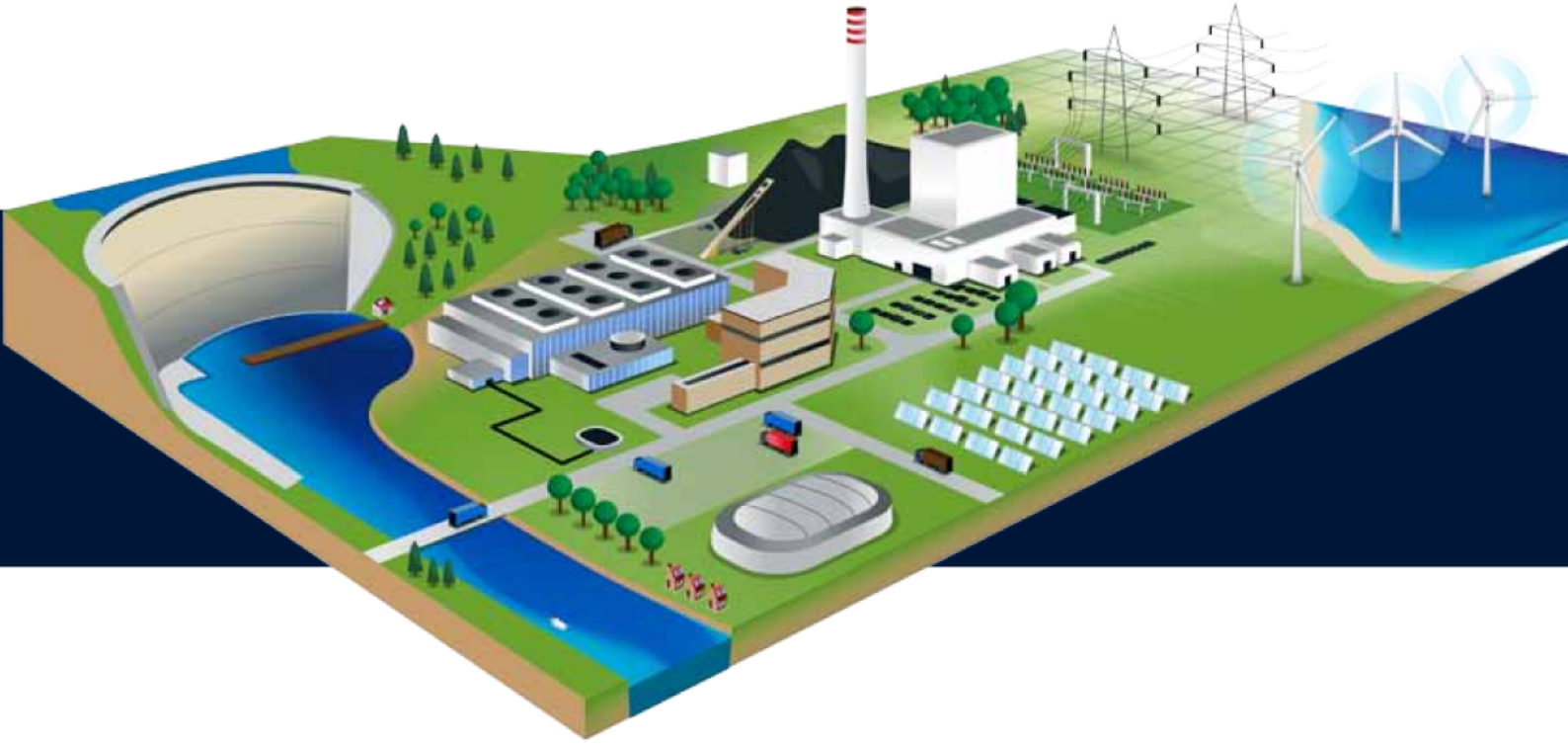
The drivers developed by COPA-DATA guarantee adherence to international standards such as IEC 61850/IEC 61400-25, IEC 60870 and DNP3.

With the seamless integration of zenon Logic, the IEC 61131-3-based PLC system from COPA-DATA, zenon Energy Edition becomes a comprehensive solution for energy automation.

“No matter where zenon is applied. Your benefits are rapid engineering, sovereign reliability and industry-leading security.”

The clever solution for a broad range of applications

WITH OVER 20,000 INSTALLATIONS, ZENON IS FIRMLY ESTABLISHED IN THE ENERGY INDUSTRY.



SUBSTATION AUTOMATION

Realize the most reliable and secure substation automation with zenon. Enable connections to all types of devices, whilst ensuring that processes always run smoothly – providing precision monitoring and operation. zenon works in transmission and distribution substations.

HYDROELECTRIC POWER PLANTS

zenon is perfect for the control and monitoring of Hydroelectric Power Plants. Provide advanced visualization and control of all the components of your plant.

WIND FARMS

Choose superior turbine controller visualization and farm management. With its IEC 61400-25 driver, zenon is optimally prepared for communication, supervision and control of wind power plants and makes the process data available to control centers (by using, for e.g., the IEC 60870-104 gateway).

PHOTOVOLTAIC PLANTS

Automated operation and remote supervision and control are the key to profitable photovoltaic power generation. Supply full transparency with sophisticated event handling and detailed reporting to reduce maintenance costs and enable continuous optimization.

MUNICIPAL GRIDS

zenon is your perfect match for use in municipal grids and provides one integrated system for controlling electricity and all other media like gas, heat, water and wastewater. Build your 24/7 control room, equip it with zenon – and you're done.

SMART GRID

The 'Smart Grid' is one of the 'hot topics' of the 21st century. Distributed energy generation and virtual power plants create an increased demand for secure, fast and reliable communication. With comprehensive communication capabilities, zenon adds value and increases cyber security in many areas of Smart Grid technology.

Why switch to zenon?

SAVE TIME IN ENGINEERING, CREATE LEADING-EDGE AUTOMATION PROJECTS AND DELIGHT YOUR CUSTOMERS.

Create sophisticated and secure applications with only a few mouse clicks. With zenon Editor, the most efficient engineering environment on the market, you will become an expert in no time. Get started quickly and create your first working project in less than an hour thanks to intuitive use and out-of-the-box functionalities. Over 20,000 zenon installations in the Energy Industry speak for themselves – you can trust in a realiable and proven system. In order to further secure your project's success, our technical consultants reliably support you whenever you need them.

“Use advanced features and functionalities out of the box without having to write code. Create even the most complex projects in a breeze.”

Native worldview in zenon – control with mouse or touch gestures

SAVE TIME WITH ZENON RAPID ENGINEERING

All specific functionalities required in energy automation projects are native to zenon. Create even sophisticated applications with just a few mouse clicks and see how your project creation times drop significantly.

Use ready-to-use functionalities out of the box – quick and secure to implement:

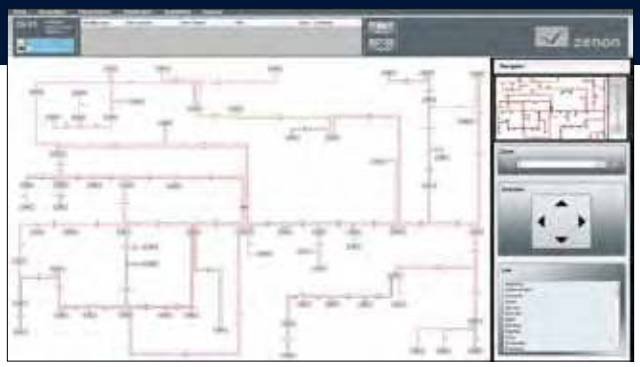
- Redundant networks
- Command processing
- Breaker tripping detection
- Switch locking
- Topology
- Simulation
- Alarm Management
- Worldview
- Multi-Touch

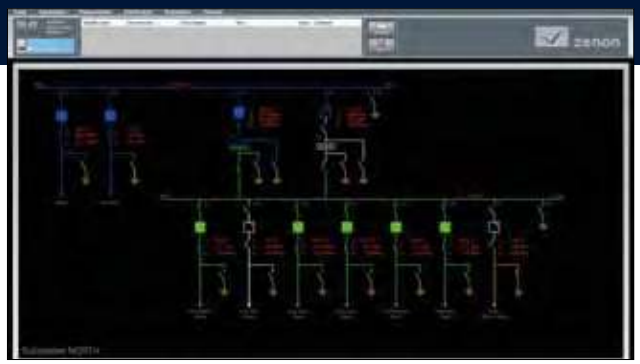
and many more.

LEADING-EDGE SOLUTIONS AND GROUNDBREAKING USABILITY THAT WILL IMPRESS YOUR CLIENTS

With zenon you will set standards in HMI/SCADA visualization and control. Bring ease and ergonomics into complex applications and enable users to operate with maximum safety and reliability. zenon supports you with out-of-the-box features like Multi-Touch gestures or Worldview.

Aim for optimal profitability.





HIGH RETURN ON INVESTMENT (ROI) IN SYSTEM IMPLEMENTATION

zenon stands for optimum return on investment with effective, fast and secure engineering and the ability to integrate perfectly in heterogeneous infrastructures.

We can guarantee this through:

- Very flexible, large bandwidth of applications, few restrictions
- Rapid engineering
- Distributed engineering capabilities
- Open product – easy to extend (with integration of VBA or VSTA .NET)

LOW TOTAL COST OF OWNERSHIP (TCO) IN SYSTEM OPERATION

The system's lifetime operating and maintenance costs are crucial. Efficient project maintenance and readiness for expansion make zenon a system with excellent TCO.

Made possible by:

- Openness and independence
- Efficient maintenance
- Modularity
- Backward compatibility

“zenon combines cutting edge technology with perfect economics. It is a rounded solution and a profitable investment.”

Put security first.

ZENON IS SETTING INDUSTRY STANDARDS IN SECURITY.

At COPA-DATA we understand that the security of a SCADA system is never a static condition but always an evolutionary process which needs continuous improvement.

By incorporating this philosophy from the first line of code in 1989, zenon became one of the most robust SCADA systems available. Our product managers and engineers are continuously engaged in making zenon even more secure.

ZENON SECURITY FEATURES

- Secure command processing (integrating “select before operate” for DNP3, IEC 60870 and IEC 61850)
- KEMA certified IEC 61850 driver
- Encrypted network communication
- Data encryption with password and hash encryption
- Certified for Windows 7 – supporting all the security features of the operating system
- No data stored in plain text
- Signed files
- SQL-Database Access can be password protected
- Each action can be locked/attributed to user rights
- Change history logging
- Chronological Event List (CEL)
- For NERC/CIP we provide information and documentation for parts CIP-002 through CIP-009
- Webserver offers HTTP Tunneling
- Webserver available solely for monitoring with no operational functions.

To ensure cyber security we follow the IEC 62351 standard and provide information for NERC/CIP if required by the system integrator. For IEC 62351 we have currently implemented the ACSE Authentication (ISO 8650-1) for the IEC 61850 client, offering compliance with S1 of PICS for the ISO 9506 profile. We are constantly working on compliance with other profiles and will implement them step by step.

Communication & Independence.

ZENON ENSURES SECURE AND OPEN COMMUNICATION, USING A WHOLE RANGE OF ENERGY-SPECIFIC PROTOCOLS FROM GOOSE TO IEC 60870.

With its native drivers and communication protocols, zenon Energy Edition is perfectly suited for all communication tasks, whether with various IEDs or to remote systems.

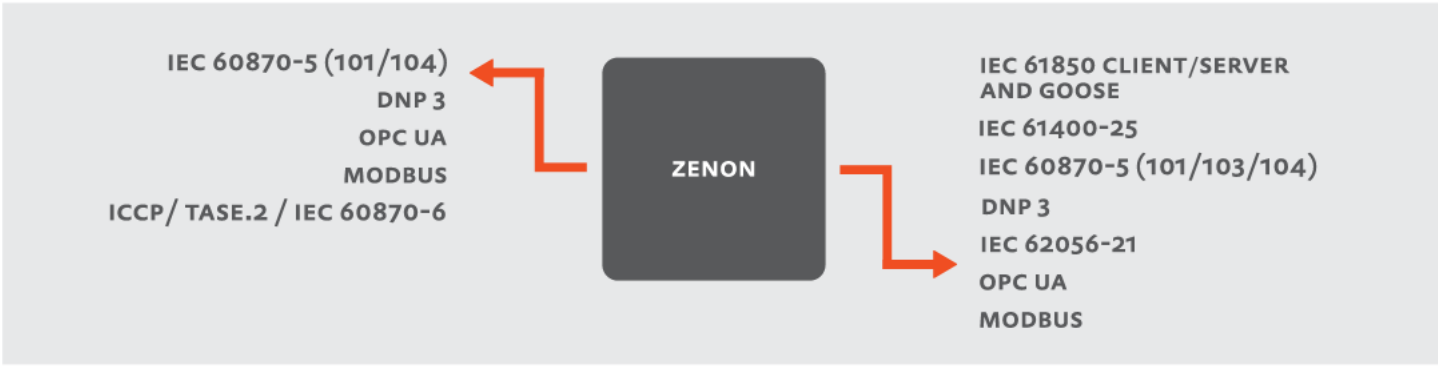
Energy Drivers and Protocols

- IEC 61850 Client/Server and GOOSE
- IEC 61400-25
- IEC 60870-5 (101/103/104)
- DNP3
- IEC 62056-21
- OPC UA
- Modbus
- IEEE C37.118 (Synchrophaser)
- Slave/Server Side with the zenon Process Gateway for ICCP/ TASE.2/ IEC 60870-6, IEC 60870-5, DNP3, OPC UA, Modbus
- Integrated SCL Editor for IEC 61850 documents

COPA-DATA's IEC 61850 client driver is KEMA certified

Stay flexible in communication.

BENEFIT FROM MANY DIFFERENT POSSIBILITES IN UPSTREAM AND DOWNSTREAM COMMUNICATION.

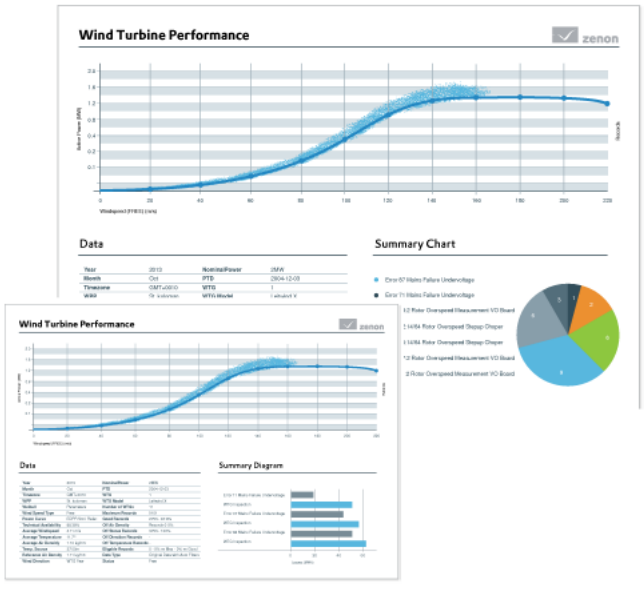


zenon's communication options in Energy Automation.

Uncover hidden potential for improved profitability.

COMPREHENSIVE REPORTING WITH ZENON

COPA-DATA's revolutionary reporting system is the optimal choice for energy applications. Integrate data from distributed data sources in graphical reports, regardless if in real-time or from historical data. These reports allow a precise overview of a power plant's status and Power Quality Indicators. Specific reports can be generated automatically, making zenon a powerful tool to create compliant, consistent documentation.



Tech Features.

COMMAND PROCESSING

- Breaker tripping detection
- Switch locking
- Topology check

The integrated, dedicated module handles secure command processing; allowing two stage and two hand commands, including the consideration of protocol-specific features such as select and execute (IEC 60870) or select before operate (IEC 61850). In order to prevent the operator from incorrectly switching, an interlocking-logic can be added to each command. The interlocking-logic can be calculated by the use of switch status or by consideration of the topological status of the lines. Command Processing comes with integrated functionalities like Breaker Tripping Detection and Switch Locking (Tag Management).

TOPOLOGY

See the power status of the lines at a glance. Choose different colors for powered, unpowered and grounded. Define a color for each voltage level and see if a transformer feeds back. For more security, undefined or faulty switches cause different coloring of the lines. This presents the information in an easily-recognizable way, so operators have immediate notice of problems. The calculated topological model can also be used for the interlocking of commands.

The engineering of topology is done just by drawing the lines and using the switches.

SIMULATION

In order to see what will happen with the grid when a certain switch is opened or closed, the operator can take a process image and run a workstation in simulation mode. Now he is able to handle all switches without affecting the real process. The simulation results can be seen by the coloring of the lines using the topological model calculation in the background.

Additionally, it is possible to design a training simulator with a workstation. The engineer just has to define the process behavior by using IEC 61131-3 language programming.

ALARM MANAGEMENT

A sophisticated alarm management concept is crucial to safe system operations. zenon Energy Edition. It offers a SCADA system which fully supports you in its implemention.

As alarm management is a native feature in zenon Energy Edition it is quickly set up and configured without having to write code. The alarm handling allows for optimum handling and usability and is fully-integrated with zenon's redundancy functions.

Visual Alarm Guidance: the alarm areas allow the creation of applications which lead the user from a summarized alarm indication to the detail-screen of the alarm. Creating a visualization of the number of alarms active, active/acknowledged and inactive/unacknowledged in a summarized manner is also possible.

INTEGRATED STATUS FLAGS

A zenon Energy Edition tag allows up to 64 status flags in addition to its value and time stamp. The status flags include:

- Protocol specific information (e.g. IEC 60870-5: Not Topical, Invalid, Substituted, Cause of Transmission, Blocked)
- Product-specific information (e.g. breaker trip, network select)
- User-specific information (set by programming interface).

CLIENT/SERVER

zenon client/server network technology provides a completely platform independent solution. Benefit from consistent availability and zero downtime through the intelligent redundancy concept. Redundancy in zenon guarantees interruption-free redundancy and lossless data recording.

zenon makes distributed operations simple and secure to set up, operate and maintain.

The setup in zenon is done with a few mouse clicks due to the native network functionality. Project updates can be implemented while the system is running, keeping the system online, available and operating at all times.

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REDUNDANCY

Benefit from consistentavailability and zero downtime through the intelligent redundancy concept. Redundancy in zenon guarantees interruption-free redundancy and lossless data recording.

NETWORK SETUP

The setup in zenon is done with a few mouse clicks due to the native incorporated network functionality. Project updates can be implemented while the system is running, keeping the system online, available and operating at all times.

Tech Features.

WEBSERVER

With zenon's web server technology you can bring your projects to any web browser without any additional engineering effort. This gives you complete freedom and flexibility regarding where your projects can be accessed. For enhanced security, the zenon Webserver is available as a standard version only for monitoring purposes - no operation is possible.

INTEGRATED HISTORIAN

Precise archiving in millisecond timestamp resolution with secure data consistency through real time data acquisition. Export your historical data to any format you need to store it or further process it in other systems.

MONITOR ADMINISTRATION

You can easily configure projects for single and multiple monitors. Project screens can be allocated to multiple monitors. zenon multi-monitor projects can also be displayed on single monitor systems without additional project engineering.

WORLD VIEW

The Worldview functionality lets you display large process screens clearly. Functions like zooming, panning and decluttering are natively incorporated and can be activated via mouse click.

MULTI-TOUCH

COPA-DATA's product family offers the worldwide first HMI/SCADA applications with native Multitouch capabilities. This ranges from simple two-hand operation to advanced functionalities like zooming or scrolling with two fingers or the use of gestures for command entry.

OBJECT ORIENTATION (SYMBOLS, VARIABLES)

Create perfect usability for operators with a library of templates and symbols. An extensive library of templates and symbols helps you to create your projects quickly with superior graphics and usability. At any time the predefined templates and symbols can be re-configured or extended with individual ones. zenon variables are based on a consistent object-orientated concept. The basis of each variable is a data type from which it is derived. When creating a variable, this provides all the properties of the allocated data type.

MULTI-PROJECT MANAGEMENT

In zenon Runtime multiple projects can run simultaneously. This means you can split up large projects easily into different smaller projects. Enjoy advantages in project maintenance, load distribution and sophisticated network functionalities like zenon's circular redundancy.

EVENT LIST

The event list records all relevant events and cannot be manipulated, which makes it ideally suited for full traceability of all user actions and system events.

USER MANAGEMENT

Well-defined user management is the key to secure operations. Each element can be assigned to one of 128 user right levels, to give you full flexibility to integrate any security concept.

In addition, zenon Energy Edition is fully Windows 7 compatible, which means that it can be integrated into Windows user administration.

DRIVERS AND PROTOCOLS

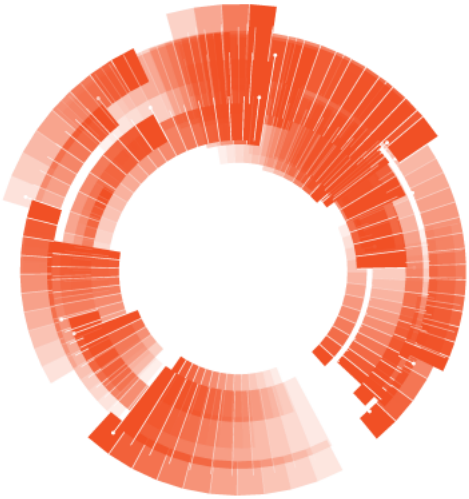
Drivers and communication protocols are the key to integrate systems with great flexibility and performance. COPA-DATA develops all drivers in-house and has native driver knowledge. This guarantees the maximum in performance, security and support. zenon enables full freedom and flexibility with over 300 native drivers and support for all relevant protocols.

AUTOMATIC ENGINEERING AND PROJECT WIZARDS

Use predefined wizards or create your own ones for recurring engineering tasks. You are also supported by automated export and import of language files when creating multi-language applications.

DISTRIBUTED ENGINEERING

In the engineering stage projects can be made available centrally and can then be edited from several workplaces. This way, teams work together efficiently, configuring regardless of location. zenon ensures safe synchronization. For enhanced engineering security, project backups can be created automatically.



zenon

SOLUTIONS FOR THE
ENERGY INDUSTRY

With over 20,000 installations zenon is a proven solution in power generation and distribution.

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