IU
INFORMATION
UNLIMITED

INSPIRATIONAL UPDATE

SPECIAL EDITION NOVEMBER 2021 | THE COPA-DATA MAGAZINE

IU
INFORMATION UNLIMITED

THE COPA-DATA MAGAZINE

SPECIAL EDITION NOVEMBER 2021

PRESIDENT AND PUBLISHER:
Thomas Punzenberger
Ing. Punzenberger COPA-DATA GmbH
Karolingerstrasse 7b, 5020 Salzburg, Austria
Commercial Register Number: FN56922i
t +43 (0)662 43 10 02-0
f +43 (0)662 43 10 02-33
www.copadata.com

EDITOR-IN-CHIEF: Sebastian Bäsken
PROJECT MANAGEMENT: Christina Andexer
EDITORIAL TEAM: Eva-Maria Oberauer-Dum, Esther Rutter
ART DIRECTION: Kathrin Machmer
COPY-EDITING:
Supertext Deutschland GmbH, Berlin, Germany

AUTHORS/CONTRIBUTORS:
Andreas Gasteiger, Christoph Franzke, Christian Bauer, Stefan Hufnagl, Phillip Werr Robert Korec

PRINT OFFICE:
Offset 5020 Druckerei & Verlag Ges.m.b.H., Bayernstrasse 27, 5072 Siezenheim, Austria
LETTERSHOP:
BK Service GmbH – Dialog Marketing Agentur, Neualmerstrasse 37, 5400 Hallein, Austria
PRINT RUN: 8000 copies

linkedin.com/company/copa-data-headquarters
facebook.com/COPADATAHeadquarters
twitter.com/copadata
xing.com/companies/copa-data
youtube.com/copadatavideos

CONTENTS

CONTACT /
FREE SUBSCRIPTION:

IU@COPADATA.COM
WWW.COPADATA.COM/IU


zenon
10
Manufacturing in a post-globalized world
More than just gazing into a crystal ball
HOW THE NEW ZENON HELP MAKES YOUR LIFE EASIER
zenon
10

PREFACE

Dear readers,

Since 2020, there has been a lot of discussion about the need for change. Two central ideas have emerged, and are beginning to change the way we do business.

First, we learned that production has to be more flexible in order to respond faster and provide stronger networks for global production. COPA-DATA is meeting this challenge with Plug & Produce – a concept that enables the use of modular equipment in production in a flexible, fast and efficient manner. This can help make a site competitive and ensure optimal time to market. To learn how this works – and to find out about the technologies that COPA-DATA is providing already – read more starting on page 4.

Second, we see that the move to sustainability, as well as the turn away from fossil fuels, is finding broad consensus and support in politics and business. At the heart of the energy revolution you'll find renewable, green energy generation and power grids that form the basis of an energy sector made up of decentralized consumers and producers. For a long time, COPA-DATA has won fans in the area of substation automation, as well as for our automation for renewable energies. Read more about new highlights in digitalization for energy projects starting on page 8.

So that you can spend your valuable time on your major goals and as little time as possible on engineering digital solutions, we invest consistently in efficient engineering for users of zenon (see page 12). One game-changing technology is to be found in our Application Sets. They provide users with all important project components, as you can discover on page 11. The result is less complexity and better results – in a shorter amount of time.

Speaking of digitalization, you'll find several QR codes in this edition of our magazine. Use them to explore topics more deeply – and digitally. And if you'd care to give us an additional five minutes – perhaps from some of the time zenon has helped save for you – we'd like to hear from you in our Information Unlimited reader survey.

Be inspired!

Thomas Punzenberger

THOMAS PUNZENBERGER, CEO

Making Plug & Produce a reality right now.

I can do it.

Modular production in manufacturing with zenon.
Industrial Software that makes your life easier.

zenon
by COPA-DATA

HOW ZENON IS FUTURE-PROOFING PRODUCTION PROCESSES WITH MODULE TYPE PACKAGE TECHNOLOGY

WELCOME TO 2030: PLUG & PRODUCE

The ability to adapt and adjust to new conditions has always been one of the keys to success for people's future – and the same is true for companies. The increasing demand for customized items, as well as for small batches with shorter and shorter innovation and product cycles, calls for more flexibility when it comes to how we use equipment today. The Module Type Package (MTP) manufacturing concept can help you meet this challenge.

zenon POL plays a major role in ensuring the optimal orchestration of individual steps.

"If you don't keep pace with the times, you'll be left behind in the blink of an eye!" This applies not only to products but also to production processes. We live in dynamic times and digitalization is adding more complexity to the mix. At the same time, companies increasingly face a greater range of customer requirements. Additionally, ever-shorter product life cycles and increasing competitive pressures make it imperative to be innovative in engineering as well as in the operation of production facilities. In this environment, MTP, or Plug & Produce, is becoming increasingly popular as a solution. And the concept is more than just another buzzword on the wave of digitalization.

THE PURSUIT OF FLEXIBILITY

The basic idea behind MTP is that modular systems and, specifically, modular digitalization are prerequisites if you want to manufacture a range of products flexibly. With MTP, large portions of the intelligent control and regulation of processes are shifted to modules. These pre-automated, modular units are easy to add, organize and adjust to meet your latest production needs. The basic requirement for end-to-end modularization in production is standardized descriptions of the information in the individual modules.

PLUG & PRODUCE

Modules are defined in zenon according to the manufacturer-independent and cross-manufacturer information model MTP. The functions of the respective module can be accessed via services. Integrated within a higher-level Process Orchestration Layer (zenon POL), these modules are then orchestrated and interconnected to form an overall system. zenon POL and the zenon Engineering Studio connect automatically and ensure smooth communication. All work steps are transferred automatically to the zenon Service Engine. Other communication participants access specific functions from the modules via a standard interface. It works in a similar way to how a PC automatically detects a printer driver, downloads it and starts the device – except that it is tailored to the complex world of process automation. A fully automatically generated process control system (PCS) or distributed control system (DCS) can be created with just a few clicks.

HOW ZENON PLAYS TO ITS STRENGTHS

Because process engineering systems are controlled from a central control room, the aim is to no longer have to control and monitor individual processes on site. The seamless integration of machines from different manufacturers into a centralized system requires a high level of connectivity. And this is exactly where one of the strengths of zenon lies: the variety of native drivers makes zenon ideal for networking devices and machines – from sensors to distributed systems. The concept is also suitable for brownfield systems, since existing systems can easily be connected and interconnected. Must-haves such as reporting, FDA conformity, connections to MES, SAP or cloud services and much more have long been standard for the zenon software platform and are, of course, also integral to MTP projects.

But how do you get started with modular production when running non-MTP-capable legacy devices? COPA-DATA also offers a solution for this scenario with its zenon Logic software. This enables users to integrate legacy devices in the world of MTP via new software controls and a modular process design.

ON TRACK FOR SUCCESS WITH SMART OBJECTS

Smart Objects are another feature that makes zenon an obvious choice for modular production. Smart Object Templates, which become Smart Objects through

instancing, are, so to speak, an equivalent for MTP. Templates enable information from MTP files to be transferred to zenon and the required elements to be created subsequently in Engineering Studio. A clearly laid out application then allows the orchestration of the content during operation. COPA-DATA thus draws on existing know-how and provides valuable synergies for Plug & Produce applications in a variety of scenarios.

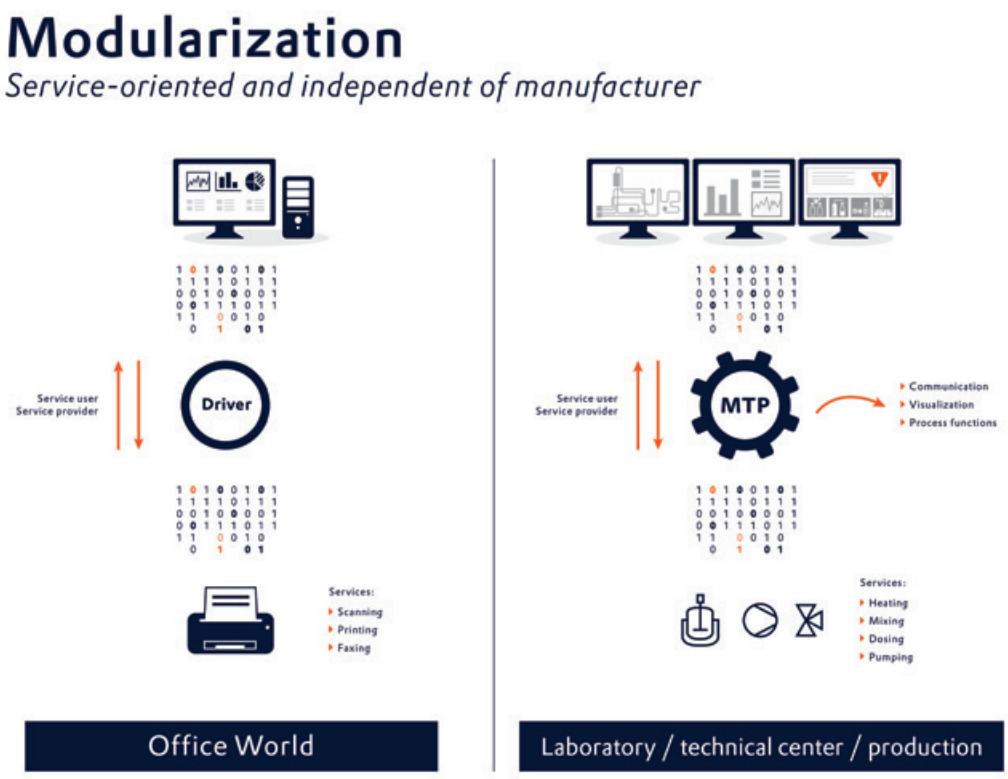
CROSS-INDUSTRY BENEFITS OF MODULAR PRODUCTION

The combination of zenon POL, Engineering Studio and Report Engine provides users with far greater levels of flexibility. Processes can be modified without any major engineering effort, and production quantities can be changed by adding or removing modules to save on resources. Because production capacity can be adjusted variably to the market, modularization can reduce investment risk when entering a market. This ensures greater competitiveness. Applied properly, the solution can reduce production costs considerably – in some scenarios by up to 40 percent, with lower production costs particularly noticeable in small batches. In addition, the solution reduces time-to-market significantly because much of the engineering activity now involves the ready-made modules, which are easy to integrate in the process control system. Scaling from laboratory to production is likewise streamlined, which further reduces product development time.

IS CHANGE THE ONE TRUE CONSTANT?

The fact that external conditions are always changing is one of the few constants in our industrial world. Taking a modular, MTP-based approach to this challenge can provide a previously unimagined flexibility and strengthen the ability to adapt in many industries. The zenon development team is also furthering its knowledge of modular production to expand the options with zenon. Thanks to zenon's existing strengths, this is happening very quickly. In fact, we have several applications already up and running where the flexibility and savings in terms of startup or conversion costs are clearly on display.

Learn more about MTP with zenon



Similar to a printer driver in the office today, MTP helps to make the most important parameters available in a standardized manner, regardless of the manufacturer or sector.

Creating sustainable and more independent energy projects with IEC 61850.

I can do it.

Initializing the next generation of digital substations with zenon.

Industrial Software that makes your life easier.

zenon
by COPA-DATA

SECURING TOMORROW'S ENERGY SUPPLY WITH IEC 61850 AND ZENON

DIGITALIZING ENERGY PROJECTS SUCCESSFULLY

Many tenders in the energy sector, particularly for substation projects, require IEC 61850 compliance. This standard is focused on the integrity of an entire system. Many companies use it as a reference system for designing their communication and technical safety programs. zenon customers can use the standard to develop flexible digitalization solutions for processes and systems because zenon can help you implement IEC 61850 in an easy and scalable manner at your company.

Solutions based on IEC 61850 offer a significant improvement in modularity and maintainability through consistent focus on function and modular design. However, meeting IEC 61850 standards can be a considerable challenge, not least because of its large scope. It presents energy service providers and system integrators with a choice: should they take a step toward a fully digital substation or should they stick with methods and processes established for decades?

BENEFITS OF IEC 61850 AT A GLANCE

It might seem challenging to fully understand IEC 61850 with all of its many parts. Yet the benefits of a digital approach clearly outweigh the cons in the long run. Let's look at a few examples.

IEC 61850 can help energy companies to:

- Save on physical cabling and related design requirements through use of secure, digital communication.
- Design systems independently and free from manufacturers' restrictions by using widely applicable functional models.
- Adapt and expand functions through software (re-) configuration without physical changes.
- Reduce expenses for testing and replacing parts by applying modular in-process test procedures and simulation functions.
- Optimize processes strategically by collecting information based on area-wide data acquisition and advanced analytics.
- Use devices and components from different manufacturers together thanks to standardized configuration and communication.

CLASH OF CONCEPTS: CONVENTIONAL VS. DIGITAL

Without going into the history of the IEC 60870 and DNP3 application protocols, we can say that they focus strictly on defining communication protocols. A number of general data objects – for commands or measured values, for example – can be used freely for the respective application. Standardization is not required at the application level. Every manufacturer and every user, so to speak, cooks up their own special sauce.

IEC 61850 was created to provide a foundation for manufacturer-independent integration of energy systems and safety equipment. The standard enables users to develop a clearly interpretable application based on a well-defined, generally applicable design language and a comprehensive function and data model. Using dedicated protocols and services, IEC 61850-compliant systems can now interact with one another at the levels of both control center and real-time critical processes. Special monitoring activities ensure a high level of robustness. In place of a thick bundle of copper cables, the solution uses a simple Ethernet or fiber optic cable to transmit digital signals across all of the connected components.

FACILITIES DATA AS A DIGITAL MULTIPLIER

A digitized, IEC 61850-compliant facility provides flexible options for verifying maintenance, equipment replacement or expansion in a systematic manner even during operation, without altering the physical configuration of the system. Implementing IEC 61850 also has strategic benefits when it comes to collecting operating data for equipment and using this data in

a targeted manner. IEC 61850 can provide a basis for improving supply stability and network quality over the long term. By creating a digital twin, operating conditions can be studied accurately and operating scenarios can be anticipated or simulated.

Newer IEC 61850 concepts enable distributed equipment to be merged so that operational management can be coordinated more effectively. Methods such as "routable GOOSE" or "routable sampled values", for example, can overcome existing equipment boundaries. In an age where we are seeing the energy environment become increasingly dynamic thanks to a growing share of renewable energies, this represents a further strategic advantage.

SUCCESSFULLY IMPLEMENTING IEC 61850 PROJECTS WITH ZENON

IEC 61850 brings key features of digitalization to the energy sector in an impressive and comprehensive fashion. Standardization based on IEC 61850 helps companies to make their systems more flexible and achieve considerable synergies in project design, implementation and maintenance. The result is a technology platform that supports new models for use and takes into account the increasing dynamics and cost pressures in the industry.

Thanks to its many strengths, the zenon software platform can play a unique role in the digitalization of substations and their subcomponents. zenon provides almost every option for connecting safety equipment and systems at station level and network control level – regardless of the device type or manufacturer. In addition, a variety of proven security concepts can be implemented flexibly. zenon gives companies the freedom to select components, as well as the ability to design flexible architectures for their PAC solutions, and provides a unique set of functions and properties for implementing IEC 61850 projects of all sizes.

IEC 61850 enables complex cabling to be replaced by network or fiber optic cables and thus promotes flexible but secure signal transmission instead of rigid wiring of signals to safety equipment.

DID YOU KNOW?

WHITE PAPER FOR DECISION-MAKERS ON DIGITALIZATION IN ENERGY PROJECTS WITH IEC 61850

This white paper provides useful insights intended to help you review your own readiness for implementing IEC 61850 in energy solutions. In addition, you'll find tips about how energy companies can prepare for a systematic rollout and learn why the zenon software platform can help you to easily scale IEC 61850 projects. You'll also find interesting historical connections between IEC 60870, DNP3 and IEC 61850.

White Paper IEC 61850

ALREADY FAMILIAR WITH OUR ZENON APPLICATION SETS?

Substation HMI
With the zenon Substation HMI Application Set, you'll be on a fast track to creating digital energy solutions for substations.

Substation HMI

Solar PV
The zenon Solar PV SCADA Application Set provides an easy-to-use and comprehensive solutions package for your professional PV system.

Solar PV

Customizing engineering projects without additional coding.

I can do it.

Efficient engineering with zenon.

Industrial Software that makes your life easier.

zenon
by COPA-DATA

HOW ZENON MAKES ENGINEERING MORE EFFICIENT AND EASIER THAN EVER

COMPLEXITY IS OVERRATED

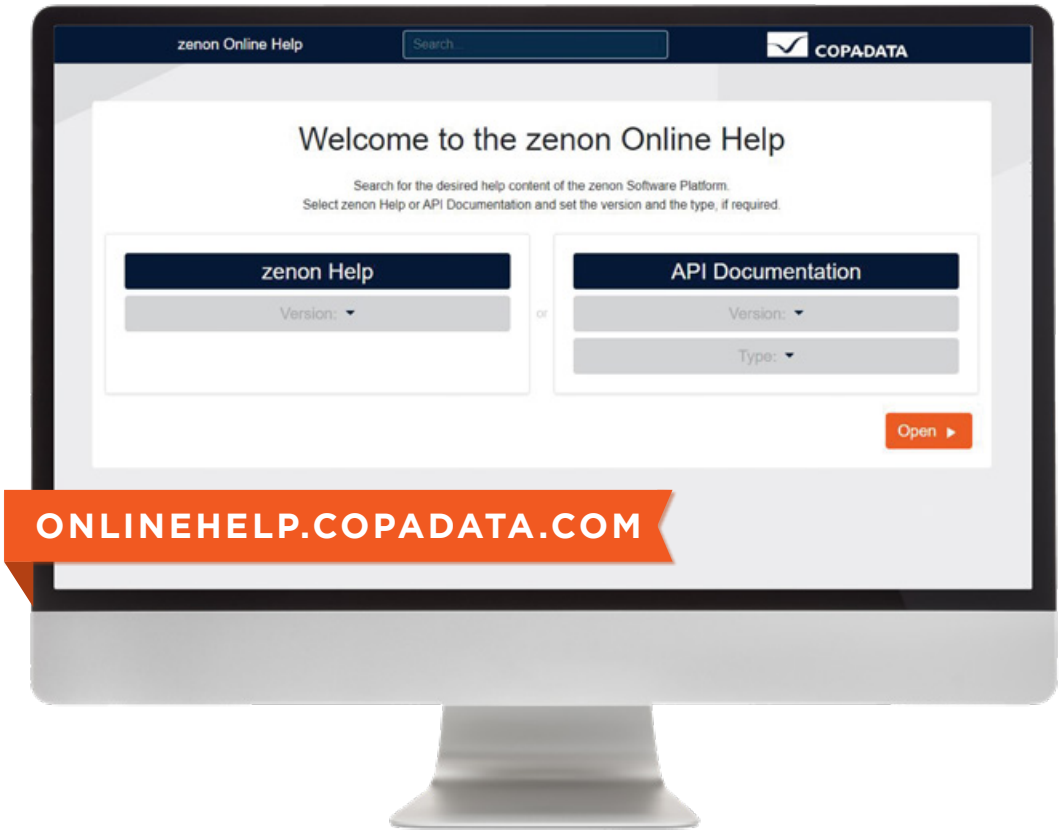
Expanding and adding new elements to legacy systems is usually a time-consuming activity. Planning a completely new automation project often involves a lot of time, stress and, in particular, complexity. Or perhaps not. Because zenon takes a different approach and is committed to simplifying the engineering process. This mission can be felt in many places.

Time and resources are valuable commodities. Therefore, it pays to work smarter – that is, more efficiently – not harder. That's where zenon comes in, because the software platform provides a wide range of options to make it easier to configure automation applications. It enables engineers to create complex projects without any programming knowledge, simply through parameterization. Engineers also know that flexibility is becoming ever more important. For this reason, zenon's fully integrated project engineering environment ensures that applications can be developed, maintained and expanded during their entire life cycle – and with efficiency. The software wizards help you to manage a wide range of standardized and recurring tasks in the project creation process. By automating these routine tasks, zenon also helps you reduce the likelihood of errors.

WORK SMARTER, NOT HARDER

More about Smart Objects in zenon

Smart Objects provide an option in zenon for setting up projects even faster and more efficiently. The foundation is provided by Smart Object Templates, which consist of familiar zenon features such as drivers, variables, symbols or images. Using the templates, engineers can create and instantiate one or more independent objects, or Smart Objects. Reaction matrices, scripts, interlocks, files, command processing and soft logic are also supported and saved as a unit. These self-contained objects represent a hardware element, for example, a switch. If 20, 30 or even 50 of these switches are required in the project, they can all be created, adapted or deleted with just a few clicks. Smart



Objects take zenon's object-oriented philosophy to the next level.

SAVE TIME AND RESOURCES

To keep an overview, zenon only needs one single, central Engineering Studio for all engineering tasks. It doesn't matter how big or small the project is or whether it's intended for mobile devices or created for web applications. With functionalities for distributed engineering, tasks are allocated optimally within the team and resources are used efficiently. Several users can work on a project at the same time without getting in each other's way. A central SQL server manages the projects. The path to greater efficiency follows the path of flexibility – with its multi-project management approach, zenon enables large projects to be bundled into logical units in one integration project. This enables entire control room projects to be created quickly, which improves performance and transparency. If changes are necessary later, changes to and updates of projects are performed centrally. Simulations can be used for testing before projects are implemented. Service technicians do not have to travel in person. Rather, zenon Remote Desktop gives them quick and secure access at any time.

Learn more about multi-project management in zenon

HELP IS JUST A CLICK AWAY

Time and again, we find ourselves in situations in life that might seem unfamiliar and confusing at first. But with a little support, every task can be solved more easily. With zenon, all available help content can be accessed on the go. This is particularly useful for access outside of your own office, for when you're on-call duty or if something needs to be looked up quickly regardless of where you are. The many video tutorials at www.copadata.com/tutorials can also provide valuable support for user applications.

ENJOY THE BENEFITS OF A SUBSCRIPTION

By the way, zenon Engineering Suite is Wavailable on a subscription basis. Compatibility with new versions means your projects are future-proofed and also ensures that your engineers always benefit from

Online help

Use zenon Engineering Suite today

state-of-the-art technology. With zenon, automation projects remain compatible across multiple product versions. Even if the latest version of zenon Engineering Studio is used, older versions of zenon Service Engine can be maintained safely. The upgrades can also be carried out without shutting down equipment.

Perhaps you want your machines to keep running with their current versions of zenon? No problem – because the subscription to zenon Engineering Suite includes full support for all zenon versions from version 6.50 (from 2010). This also applies to versions that are otherwise no longer supported by COPA-DATA.

Efficiency is the order of the day. At COPA-DATA, we have taken this to heart. It has been core to our approach from the start and is still in place as we develop our zenon software platform. We are always looking for new ways to make the engineering process easier. For example, Smart Objects, which we released for the first time almost two years ago, have already become an integral part of the software platform. In the future, too, we will continue to find new ways to make engineering with zenon efficient and as easy as child's play.

EFFICIENT ENGINEERING WITH ZENON

Read more about how zenon can accelerate your engineering practices in our ongoing series from the Information Unlimited magazine.

PREVIEW

INFORMATION UNLIMITED 38

In the spotlight: Future Skill-Sets

In next issue's Spotlight, we are going to look at how the shortage of skilled workers is aggravated by climate change. How can companies solve the potential conflict between climate neutrality and growth? What strategies can companies use to build up new skills? We will explore these questions together with experts.

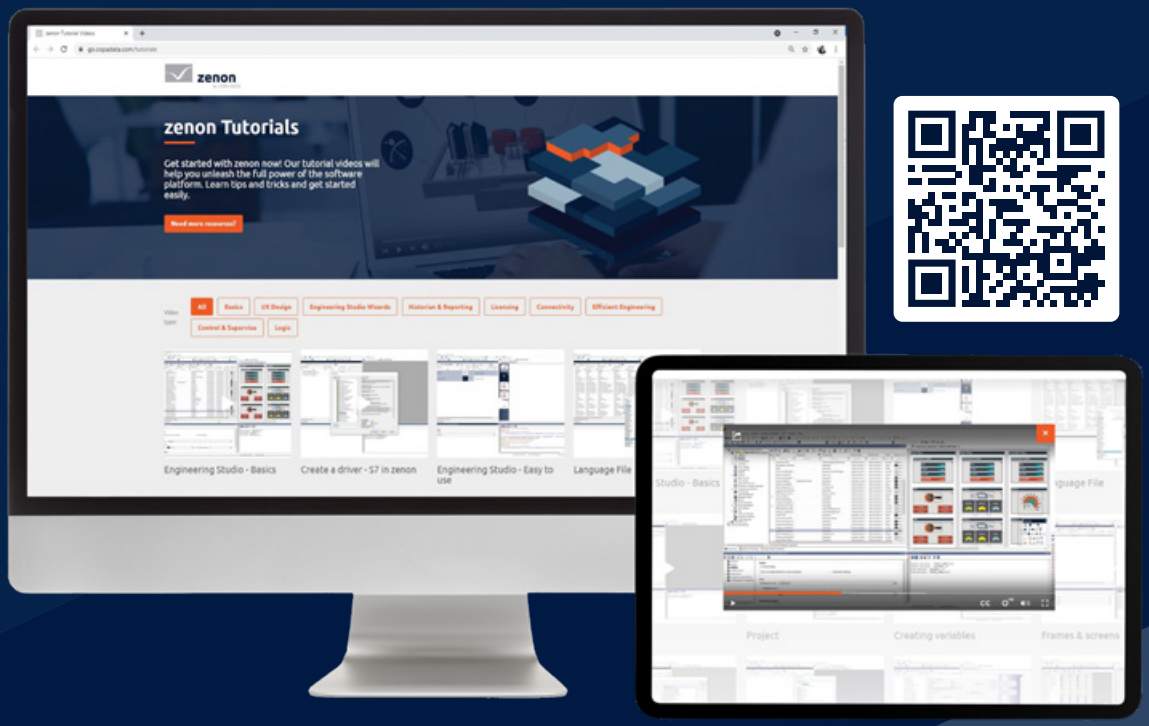
Read also:

- *Why Industry 4.0 cannot succeed without IT/OT convergence.*
- *Which steps are necessary to efficiently prepare a user-centered visualization.*
- *What the quickest path is when a project stands still.*
- *To what extent digitalization is also changing engineering in the energy sector.*
- *Whether modular manufacturing in the Life Science sector is still a dream or already a reality.*
- *How zenon succeeds in building interdisciplinary bridges across different fields, disciplines and technologies in the automotive industry.*

Stay informed – read articles on further current topics related to industrial automation and digitalization in the upcoming digital or printed issues of *Information Unlimited.*

IU Magazine

You can read all our previous issues here anytime



zenon Tutorials

Get started with zenon now! Our tutorial videos will help you unleash the full power of the software platform. Learn tips and tricks and get started easily:

www.copadata.com/tutorials

zenon
by COPA-DATA