ADMO

Intelligent data management for electrical power systems with optional time grading

Optimize your workflows

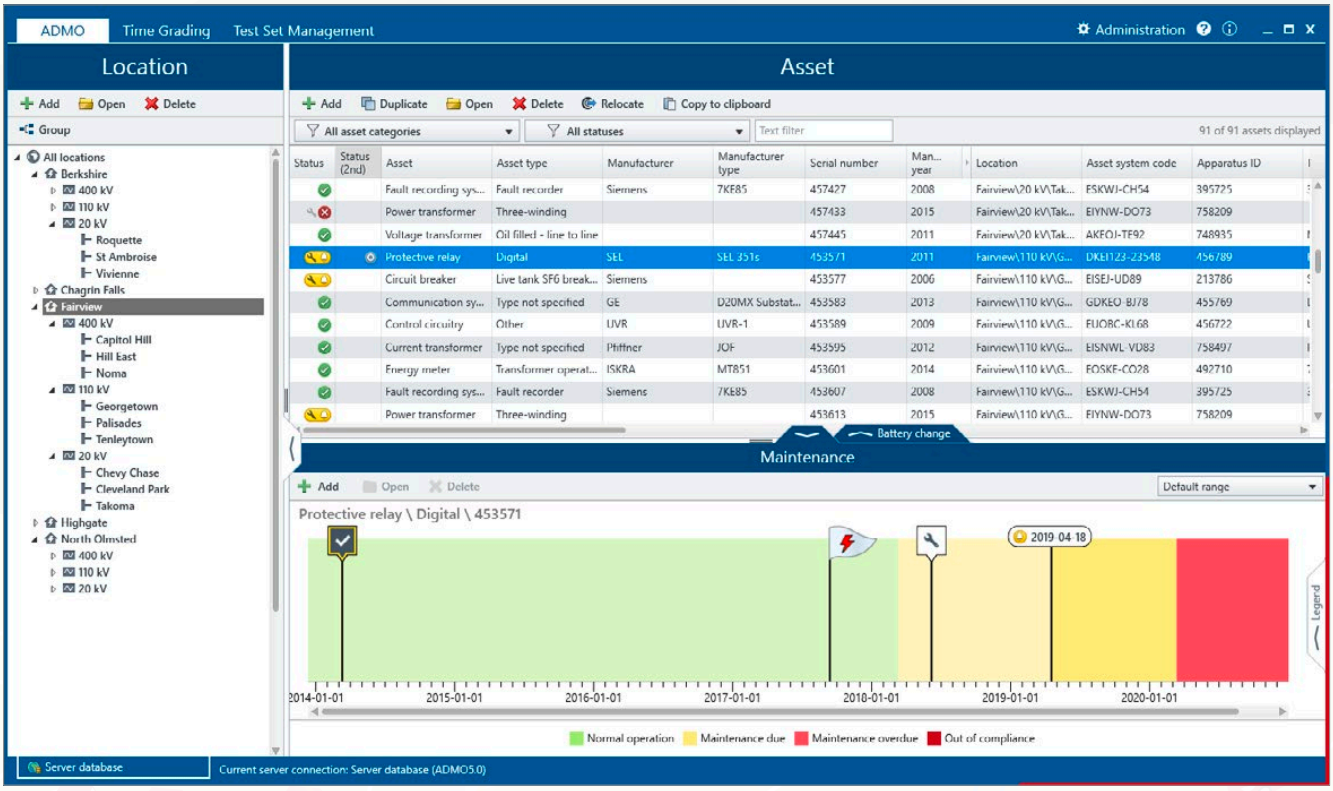
Electric utilities have increasingly exacting requirements for controlling and monitoring power supply networks. The complexity of configuration options for protection devices is also increasing. While this opens up new application capabilities, it also means that protection devices are becoming more complex.

Often, utilities rely on adapted ERP systems or even internally developed applications to manage equipment data and plan maintenances. However, these systems cannot meet the special needs of energy suppliers during commissioning or maintenance activities, or their IT security requirements.

Data management for electric utilities

ADMO allows all of the components of a network to be administered in a structured manner. The software is at the center of all commissioning and maintenance tasks and supports the needs of different user groups during the planning, implementation, and tracking of maintenance work. ADMO ensures that the workflows of asset and operations managers, testers, and protection engineers are structured and coordinated. Key data is kept up-to-date and is available to all employees at all times. Functions are logical and easy to use thanks to an intuitive interface. All data can be accessed quickly.

The generated data set offers a basis for analyses and evaluations. This enables effective decision-making and allows maintenance strategies to be optimized.



Leave nothing to chance:
ADMO offers a structured overview of all locations, devices, and maintenance activities.

No matter where or when:
the latest documents and data are always at your fingertips

Reducing the daily workload of the ...

Tester

- Availability of all necessary data and test procedures
- Offline access at the substation
- Clear association between locations, assets, and documents
- Optimized test procedures
- Automatic synchronization

Settings engineer

- Analysis of the protection equipment behavior
- Defined processes for configuration and settings management
- Flexible searches and comparisons for the harmonization of settings

Operations manager

- Clear overview of the overall status of the system
- Precise planning of routine cyclical tests
- Efficient coordination of different teams (system control center, engineers, etc.)

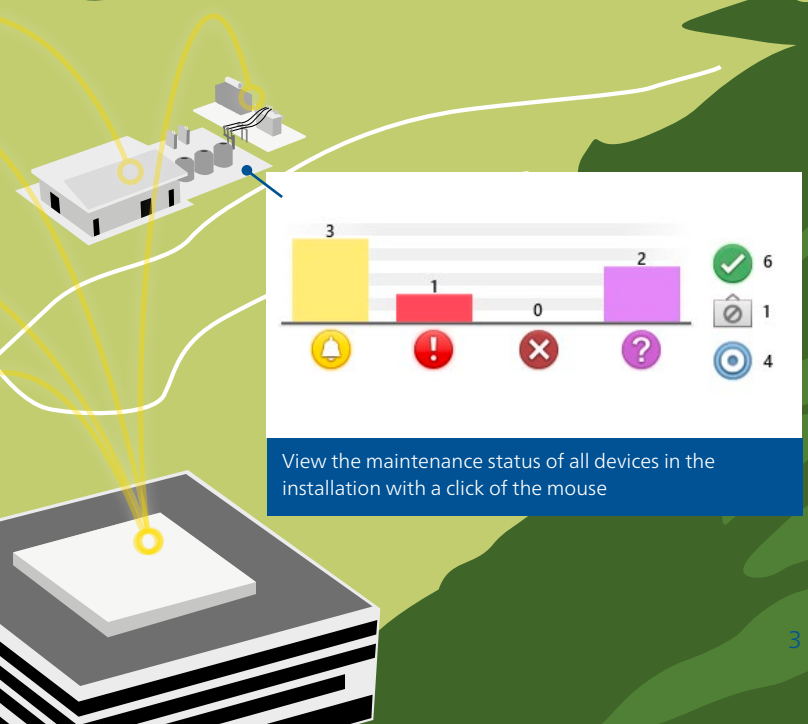
Asset manager

- High quality data for advanced analyses
- Optimization of maintenance and repair strategies

ADMO Time Grading for the ...

Settings engineer

- Easy creation and modification of characteristics for overcurrent protection and distance protection
- Automation of activities and simple creation of variants
- Clear and simple organisation of tripping schedules and visualization of dependencies



View the maintenance status of all devices in the installation with a click of the mouse

Standardize commissioning and routine tests

The commissioning of a relay follows a defined test specification and requires precise analysis of whether the device is behaving as specified. This forms the qualitative basis for stable operating behavior. Standardized test templates and settings identify potential sources of errors and make it possible to compare results.

Preparation in the office

ADMO reduces the workload in the office. Using the company network, ADMO automatically synchronizes with the test PC to ensure that the data, test templates and schedules are up-to-date. These functions are particularly beneficial for working in distributed teams, as it ensures that everyone has access to the latest standardized information.

ADMO not only contains the status of individual assets, it also tracks the status of test sets. This allows testers to know if their test set can be used for the task at hand, or whether it requires calibration first.

Working in the field

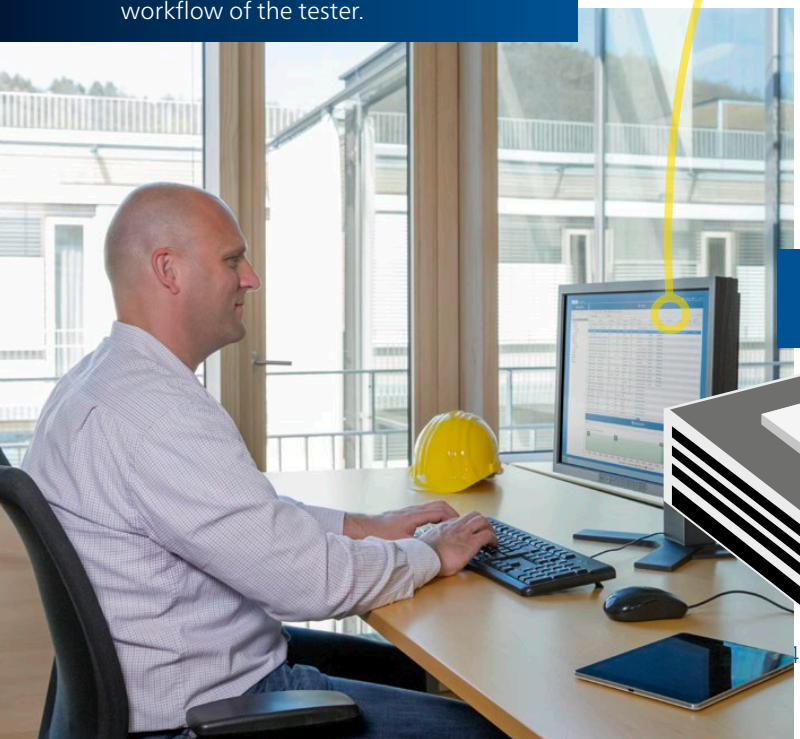
When working in a substation, a network connection is often not available. In this case, ADMO operates in offline mode. All important information such as test templates, setting parameters, maintenance history, etc. are still available to the tester in the field.

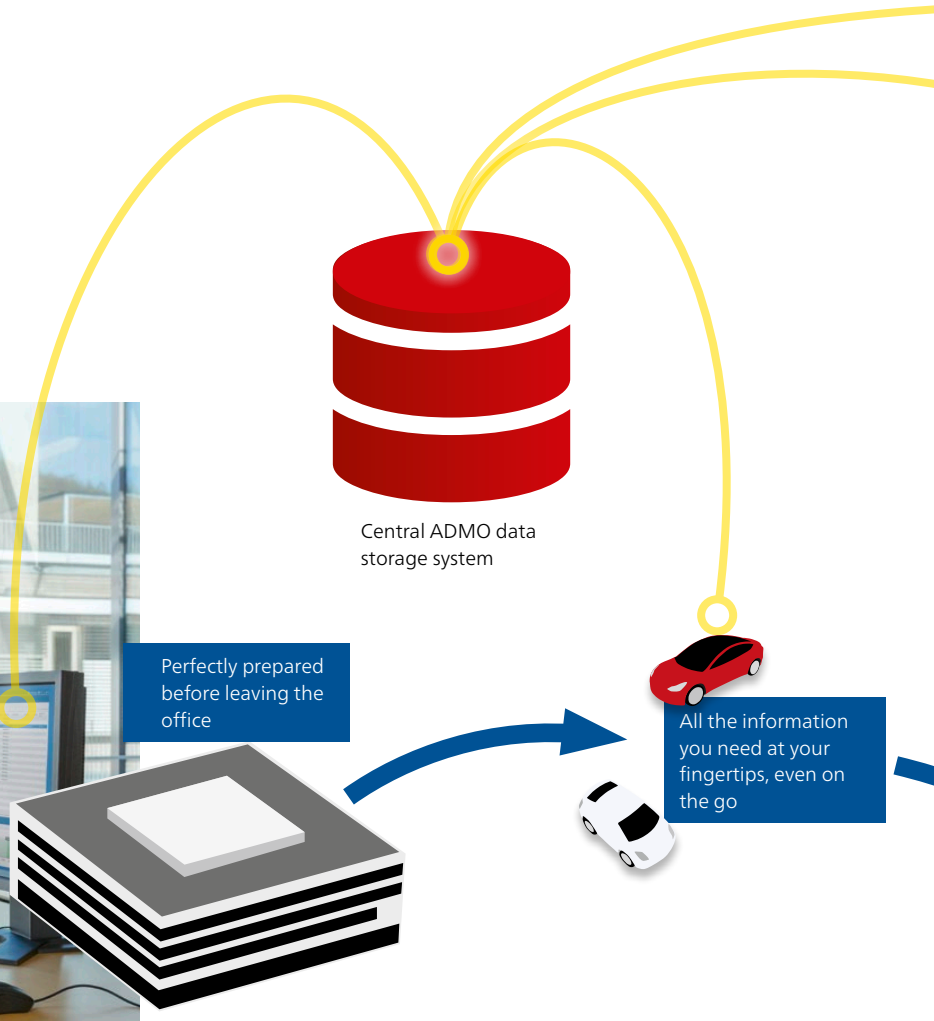
The current settings of the device can be visualized in ADMO before the test. If a fault has occurred in the area supply network, details of the network disturbance can also be viewed in ADMO. This can help to explain an unexpected behavior of a device.

OMICRON Test Universe software can be called up directly from ADMO. Settings and test results are automatically saved and transferred to the central database after completion of the test. If follow-up activities are required, these can be planned and saved using ADMO.

Always up-to-date

As long as ADMO is online, the database of the test PCs are constantly synchronized with the central database. This means that even changes made at short notice are reliably introduced in the workflow of the tester.





Back at the office

As soon as the test PC reconnects to the company network, it synchronizes with the central data server and all new data is saved. This removes the need for time-consuming manual follow-up work.

E-mail notifications about planned events or successfully completed tests can also be sent out, if desired.

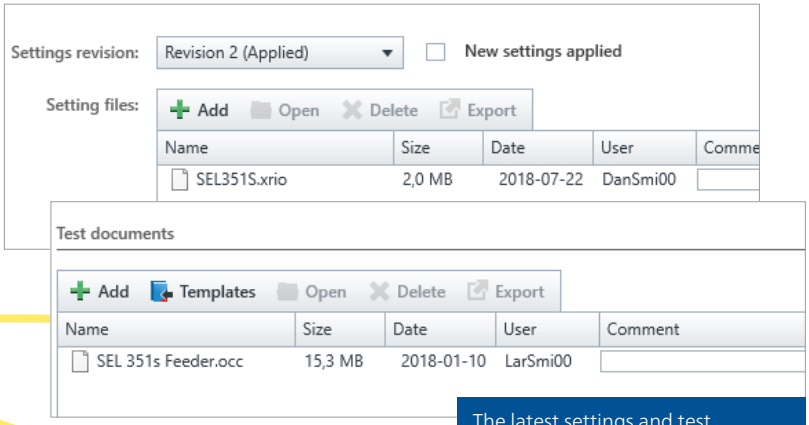
Tester

Settings engineer

Operations manager

Asset manager

ADMO Time Grading



The latest settings and test templates are always at hand

Clicking on an event opens all the relevant information for carrying out a commissioning or maintenance. This includes test templates, settings, manuals and more.

Automatic comparison of all data, even from home

The OMICRON Test Universe software can be called up directly from ADMO

Benefits for testers

- Access to all relevant data at all times
- Planning and organization of all upcoming work
- Harmonization of workflows and standardization of testing procedures
- Setup of automatic e-mail reminders
- No time-consuming follow-up work on data

Harmonize the configuration of your devices

Electric utilities are facing ever greater challenges when it comes to determining whether a protection device will function as expected under real conditions.

The number of configuration options for individual devices is constantly increasing, yet there is often a lack of systems that provide adequate workflow support for calculating settings and applying them to the devices. ADMO addresses these exact issues and offers a comprehensive workflow for configuration management.

Creating clarity through versioning

All setting parameters are managed using revisions. A revision contains metadata, the manufacturer-specific configuration file, and a table for visualizing the setting parameters.
Each revision is assigned a status ("In Planning", "Issued", "Applied" or "Archived"). This makes it clear what the status of the settings in the revision is.

1.

Manage basic settings as master revisions

Once basic settings have been harmonized, meaning that key fixed values have been standardized company-wide, the behavior of protection devices can be predicted. ADMO offers the option of managing these basic settings as manufacturer-specific master revisions.

At this higher level, key parameters, such as measurement circuit monitoring, are initially entered as primary values.

Master setting

2.

Create device revisions

In order to create a device revision, the issued master revision containing the basic settings is first selected. Secondary values are automatically calculated using the values from the current and voltage transformers of the corresponding feeder. The variable parameters are then entered. This can be done manually or using an XRIO import. Once the calculation of the setting parameters is complete, the status of the device revision is set to "Issued".

Device setting

3.

Install the revision on the device

The commissioning engineer in the field creates a new commissioning or recommissioning event in the ADMO time axis of the device. The event will then receive the correct revision that has been approved for installation on the specific device. The commissioning engineer can export the parameter file directly from the revision in ADMO. After completion of the configuration and the commissioning test, the engineer once again copies the now active settings from the device into ADMO for documentation purposes.

4.

Report back to the settings engineer

Once the engineer has completed the parameterization, ADMO automatically reports that there has been a change to the active settings of a specific device. The protection engineer can now initiate a comparison in order to be sure that the approved settings have in fact been applied in the device.

In Planning
Issued
Applied
Archived

Compare your settings

Sophisticated search and comparison options make it possible to check parameters for accuracy and identify deviations:

Tester

Settings engineer

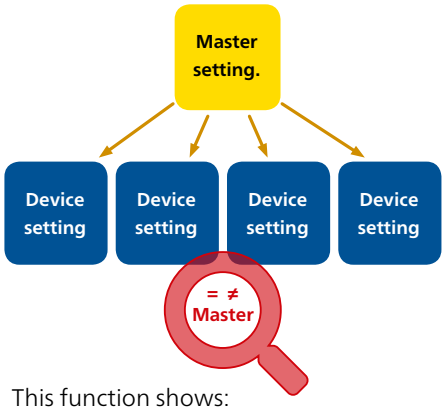
Operations manager

Asset manager

ADMO Time Grading

Find

Find all device revisions that are based on a certain master setting.

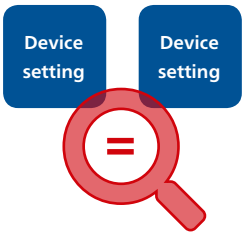


This function shows:

- Which devices already have the latest master settings
- Which devices still need to be updated
- Where values of individual parameters deviate from the basic settings

Compare

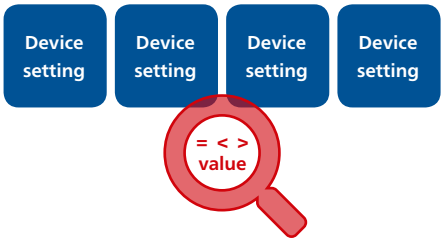
Visualize the differences between two settings in a direct comparison.



A direct comparison of parameter tables can, for example, allow a comparison of issued and applied settings. This allows a quick visualization of changes and deviations in parameters.

Analyze

Compare all values of a parameter across several settings.

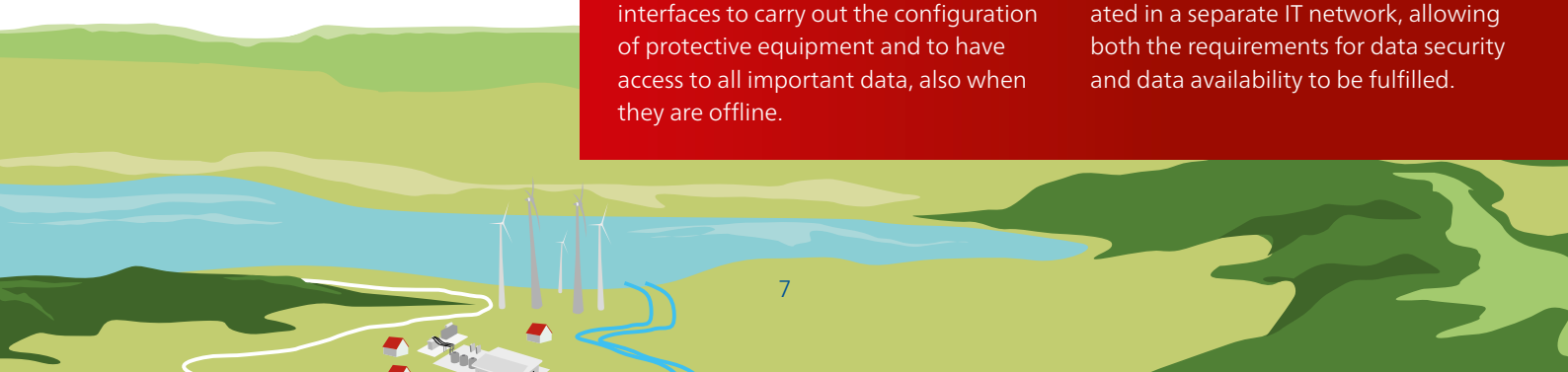


This search enables the analysis of all values of a certain parameter across different devices.

IT network security

IT security requirements are impacting network operations to an increasing extent. Testers and protection engineers must be able to change interfaces to carry out the configuration of protective equipment and to have access to all important data, also when they are offline.

In order to ensure that equipment data is handled securely, access from other IT networks is monitored, regulated, or even prevented. ADMO can be operated in a separate IT network, allowing both the requirements for data security and data availability to be fulfilled.



Plan your maintenance

The preparation and planning of maintenances for protection devices is a challenging task that requires a great deal of organization. Maintenances have to be carried out on different devices within a specific time window. ADMO offers a sophisticated and professional solution.

At a glance

ADMO lets operations managers keep a constant eye on their installations. They can quickly find answers to important questions, such as:

- What is the maintenance status of my equipment?
- What maintenance has already been carried out and what maintenance is due?
- Where are the test documents?
- Where is additional follow-up required?

The central management of all device and maintenance documents and data also makes day-to-day work easier. Manuals can be saved in the type library and are then automatically available at all relevant devices.

Complete history

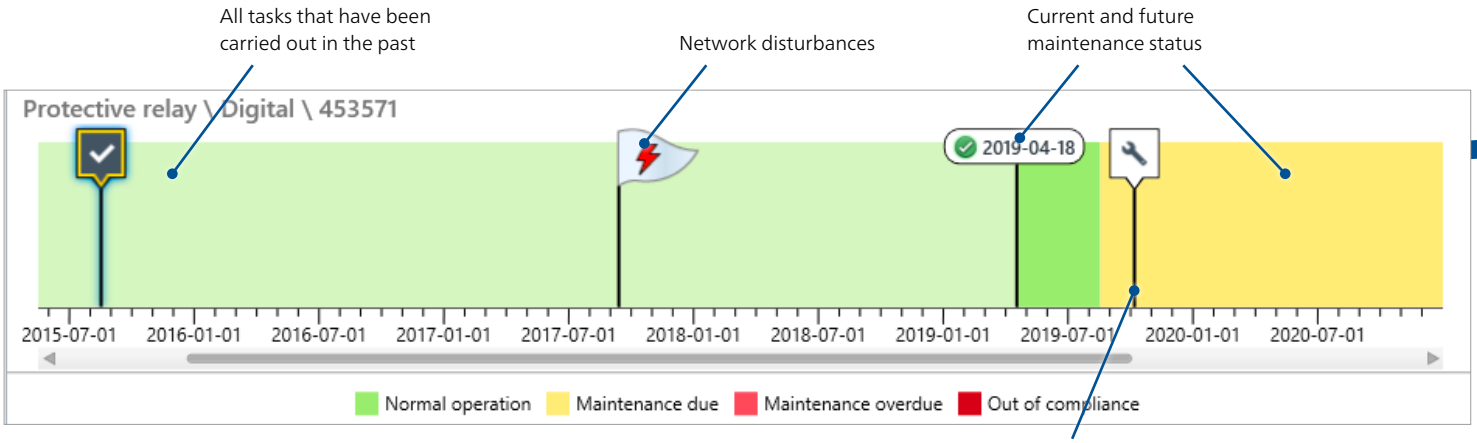
All work and maintenances that have been carried out are visualized in a timeline. This means that a complete history of the maintenance work and other events is available for every device. It is also easy to schedule future tasks, such as firmware updates, battery replacements, or changes to the configuration here.

Perfect integration into the IT landscape

Connections and interfaces to existing systems can also be configured, depending on requirements. This provides for optimal data flow and prevents data silos.

Standardized testing procedures

The standardization of testing procedures helps to avoid errors and ensures the quality and the comparability of results. ADMO helps employees to optimize their workflows and provides control mechanisms that ensure that key workflows run as planned. For example, test templates can be defined and stored centrally. Testers in the field then have direct access to the latest, device-specific templates.



In the maintenance overview, either the status of all devices in an installation or the timeline (history) of a certain device is displayed.

Make the right decisions thanks to reliable data

Asset managers need to make strategic decisions to enable them to optimize their system. This means balancing financial considerations with network security aspects.

All data in one system

The latest network operation data is an important factor in key decision-making for asset managers. However, this data is often difficult or even impossible to access, as it is usually saved locally on the field notebooks. With ADMO, the data is managed in a central system along with all other device data.

System status at a glance

ADMO's location overview provides an insight into the current maintenance status of all equipment in the system at a glance. Network faults can be visualized and tripping schedules can be generated.

Evaluation and reporting

Key device and system data that is stored in ADMO is immediately available for evaluation purposes and to produce reports.

A direct connection to the complementary web application InSight offers additional analysis options. Standard widgets show, for example, the age distribution of the equipment in the system, or whether misoperations occur more frequently on devices made by certain manufacturer types.

Tester

Settings engineer

Operations manager

Asset manager

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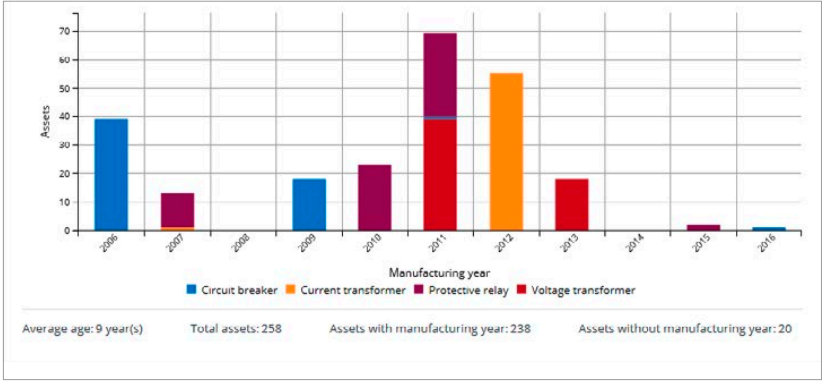
Asset kind	Asset type	Serial No.	Location	Asset out of compliance	Monitoring status	Timeline	Maintenance program	Max. interval	Next planned event type
Circuit breaker	Live tank SF6 breaker	457271fr32	Berkshire\110 kV\Feeder 1	no	Not monitored	Maintenance	Time-based maintenance	6 years	
Communication system	Type not specified	457271fr33	Berkshire\110 kV\Feeder 1	no	Not monitored	Maintenance	Time-based maintenance	6 years	Maintenance
Control circuitry	Other	457271fr34	Berkshire\110 kV\Feeder 1	no	Not monitored	Maintenance	Time-based maintenance	12 years	Maintenance
Current transformer	Type not specified	457271fr35	Berkshire\110 kV\Feeder 1	no	Not monitored	Maintenance	Time-based maintenance	12 years	Maintenance

During an audit, the maintenance histories of individual items of equipment can be checked immediately.



A number of evaluation options are already contained in ADMO. InSight, our solution for the analysis of asset data, provides information with an even greater level of detail.

Information about InSight can be found at: www.omicronenergy.com/InSight

Advantages for operations and asset managers

- Standardized evaluation of device data
- The latest data and maintenance information
- Visualization of trends and notable information
- Complete life history of all devices

ADMO Time Grading

Knowledge gained from trip coordination forms the basis for configuration settings in protection technology. The tripping schedule specifies the time at which each protection relay trips in the event of a network fault. The impact of a fault is minimized by selectively separating the faults from the supply network. This prevents damage to your infrastructure and maintains the security of supply.

The effort of creating tripping schedules has increased significantly in recent years, resulting in a demand for new solutions.

How do you create your tripping schedules?

Do your tools provide optimum support?

Current challenges

- Network topologies are becoming increasingly complex
- Unsuitable tools no longer meet requirements
- Changes are laborious and time-consuming
- Insufficient filing methods make it difficult to obtain a clear overview
- Complexity and manual compilation increase the risk of errors

ADMO Time Grading

- Draw characteristics for overcurrent protection and distance protection relays in one diagram
- Create characteristics simply and efficiently
- Automatically collate characteristics
- Easily take into account intermediate injections and parallel lines
- Identify dependencies between your tripping schedules at a glance
- Maintain a clear overview when managing your tripping schedules

For overcurrent and distance protection

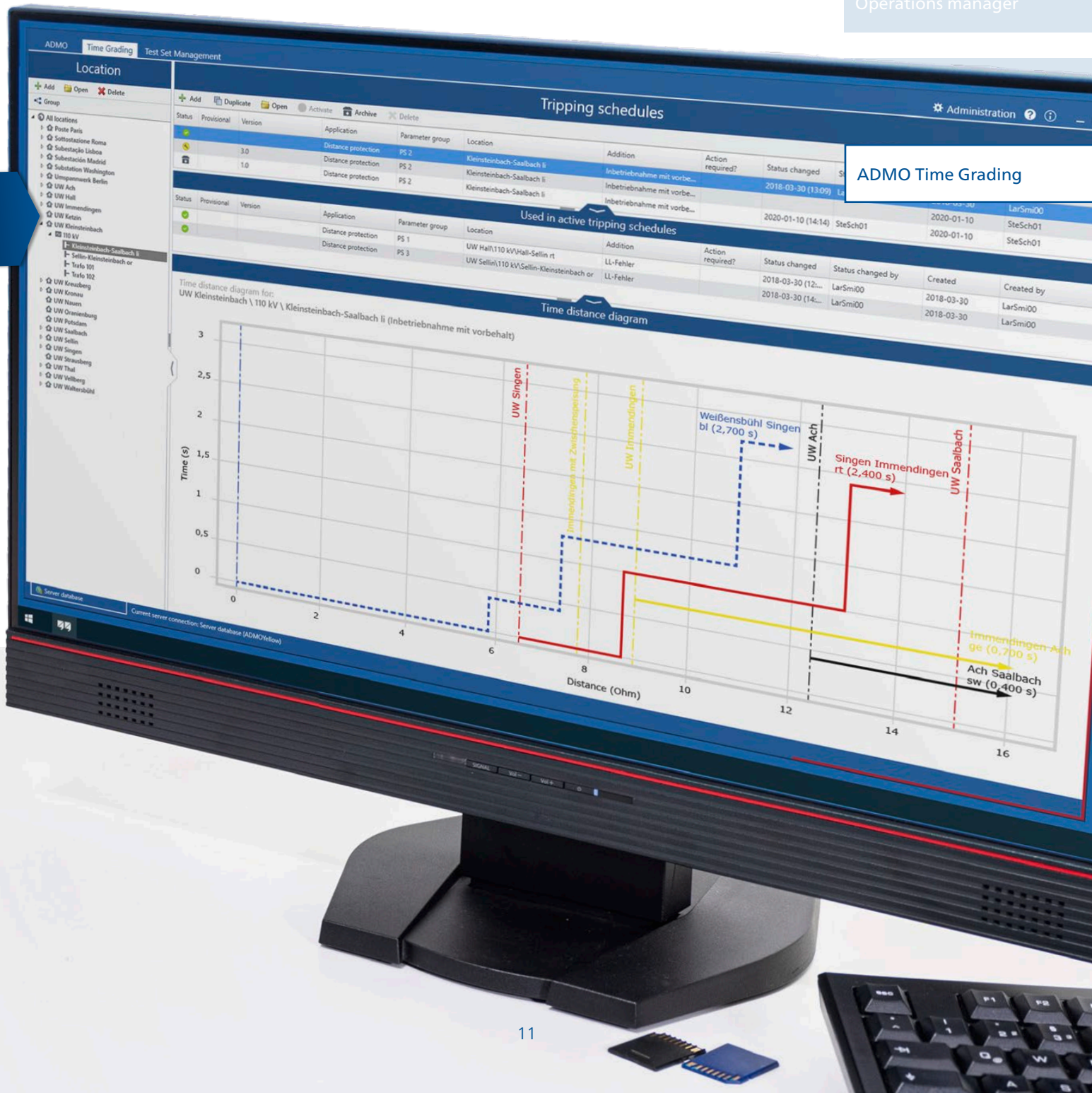
With ADMO Time Grading, OMICRON is offering a unique and tailor-made solution: safe, simple, and time-saving creation of tripping schedules — now for overcurrent as well as distance protection.

Tester

Settings engineer

Operations manager

ADMO Time Grading



Create tripping schedules safely and efficiently

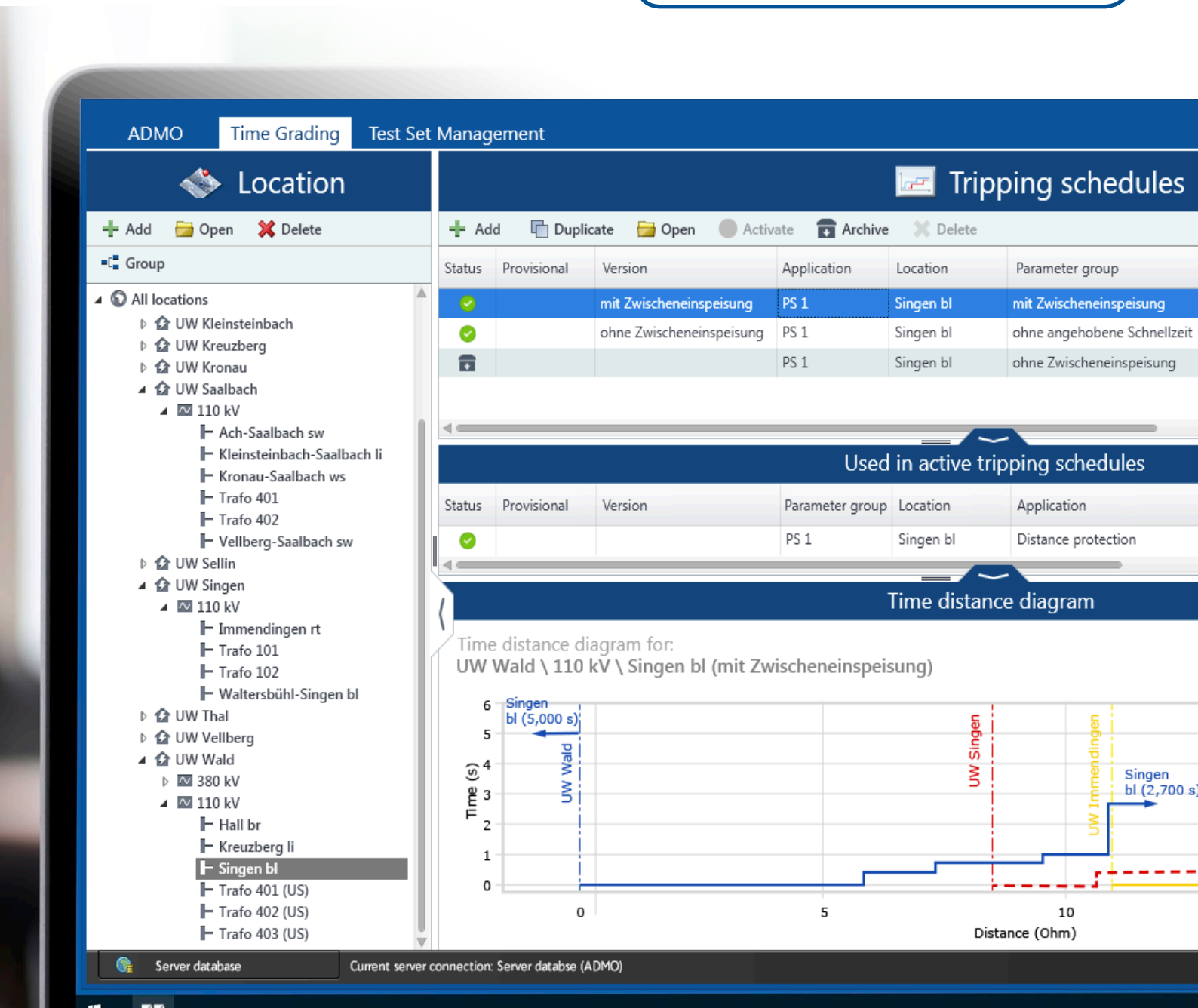
ADMO Time Grading uses innovative functions to provide optimum support during the creation and subsequent verification of the selectivity of your tripping schedules.

Can you collate your characteristics with just a few clicks?

ADMO Time Grading enables you to collate your characteristics from any number of feeds on a busbar. Form a cumulative characteristic with just a few clicks.

Do you want to create characteristics quickly and easily?

Tripping characteristics for overcurrent and distance protection can be displayed simply by entering their values. The characteristics are visualized in an X/t diagram and can be amended at any time. You can also include existing reference lines from overcurrent protection or distance relays or additional reference points. This enables crossovers to be identified and corrected efficiently. In the case of variants, the tripping schedules can be copied and adapted accordingly.

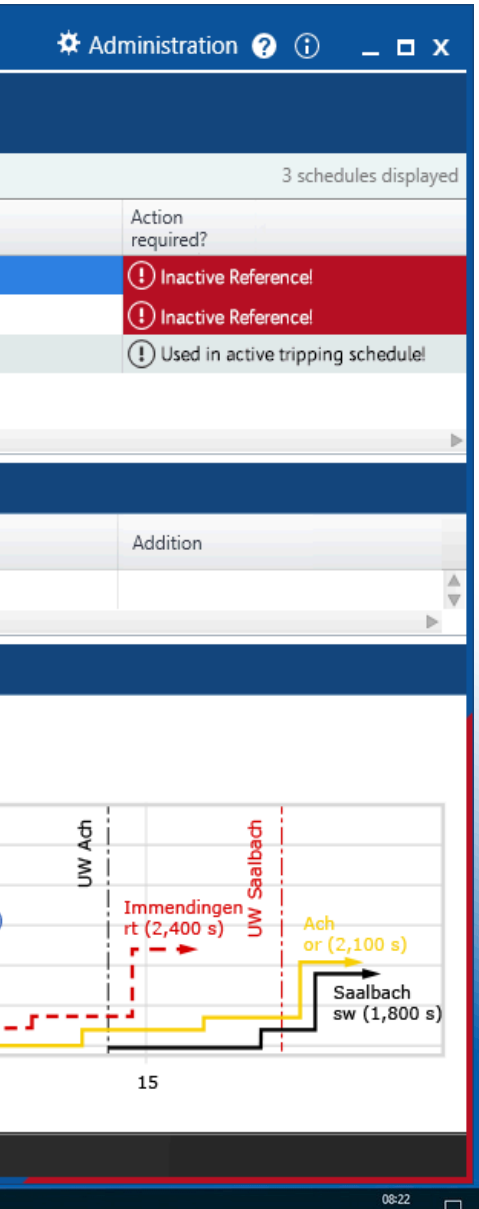


Do you have to choose between selectivity and speed?

Why not create a variant of the tripping schedule. For example, you can use it to take into account an intermediate injection caused by switching states. Draw comparisons and make an informed decision quickly.

Do you want to examine dependencies from reference schedules fast and reliably?

Every time a tripping schedule is updated, ADMO Time Grading tells you whether other tripping schedules are using the schedule in question as a reference and, therefore, whether these must also be updated. It is also easy to determine whether a tripping schedule contains inactive references. This means not a single dependency will be overlooked and you can harmonize all affected tripping schedules with the amended characteristic.



Do you always have an up-to-date overview of all your tripping schedules?

ADMO Time Grading keeps you on top of everything. The status and version of a tripping schedule enables you to clearly identify which schedules have most recently been updated. All tripping schedules are organized in a clear tree structure and deactivated tripping schedules are archived.

Your benefits

- Simple creation of characteristics
- Automatic collation of characteristics
- Intermediate injections and parallel lines taken into account
- Identification of dependencies between tripping schedules
- Efficient management of tripping schedules

We create customer value through ...

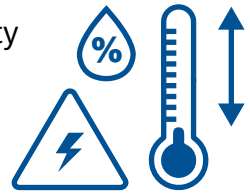
Quality

You can rely on the highest safety and security standards

Superior reliability with up to

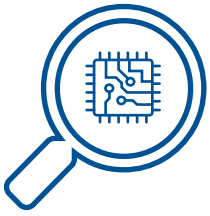
72

hours burn-in tests before delivery



100%

routine testing for all test set components



ISO 9001
TÜV & EMAS
ISO 14001
OHSAS 18001

Compliance with international standards

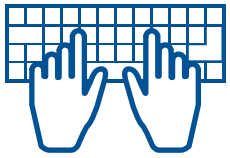
Innovation

... a product portfolio tailored to my needs

More than

200

developers keep our solutions up-to-date



More than

15%

of our annual sales is reinvested in research and development

Save up to

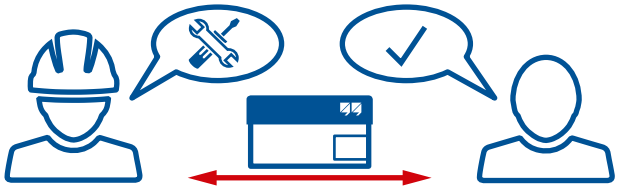
70%

testing time through templates, and automation

Support

Professional technical support at any time

Loaner devices help to reduce downtime



Cost-effective and straight-forward repair and calibration

offices worldwide for local contact and support

Knowledge

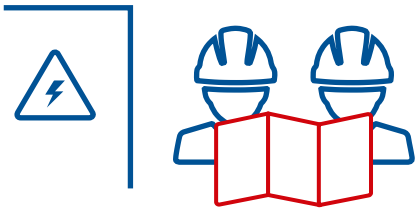
More than

300

Academy and numerous hands-on trainings per year

Frequently OMICRON hosted user meetings, seminars and conferences

to thousands of technical papers and application notes



Extensive expertise in consulting, testing and diagnostics

OMICRON is an international company that works passionately on ideas for making electric power systems safe and reliable. Our pioneering solutions are designed to meet our industry's current and future challenges. We always go the extra mile to empower our customers: we react to their needs, provide extraordinary local support, and share our expertise.

Within the OMICRON group, we research and develop innovative technologies for all fields in electric power systems. When it comes to electrical testing for medium- and high-voltage equipment, protection testing, digital substation testing solutions, and cybersecurity solutions, customers all over the world trust in the accuracy, speed, and quality of our user-friendly solutions.

Founded in 1984, OMICRON draws on their decades of profound expertise in the field of electric power engineering. A dedicated team of more than 900 employees provides solutions with 24/7 support at 25 locations worldwide and serves customers in more than 160 countries.

For more information, additional literature, and detailed contact information of our worldwide offices please visit our website.

www.omicronenergy.com

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