

## Arab Union of Electricity Workshop OMICRON Solutions for IEC61850 and Cybersecurity

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# 1 Digital Transformation



Duration  
1 day

Language  
English

Location  
OCC Building – Klaus, Austria

Date  
15/05/2023

## 1.1 Overview

Topic	Description	Timing
Introduction	Meeting the team	15 Mins
<b>Building a Digital Substation is a Digitalization Project</b>	<p>Presentation</p> <p>A Digital Substation is not just another substation where things are done the same way as before, but with slightly different means, such as replacing hard wired contacts by GOOSE messages. To fully exploit the potentials of the new technologies, new ways of thinking and doing things must be applied. Some important foundations of the Digital Substation are:</p> <ul style="list-style-type: none"> <li>• Reliable and performant networks</li> <li>• Time synchronization</li> <li>• Engineering</li> <li>• A test strategy</li> <li>• Project and team management</li> </ul> <p>Going through the listed topics, some cornerstones of a Digital Substation and a digitized power system, also called the Smart Grid, will be highlighted.</p>	45 Minutes
<b>Q&amp;A and Discussion</b>		15 Minutes

<p><b>Digital Substation Consulting Services</b></p>	<p>Digital Substation Consultancy services can provide expert guidance on various aspects of digital substation development, such as</p> <ul style="list-style-type: none"> <li>• Feasibility studies</li> <li>• System architecture.</li> <li>• Engineering specifications.</li> <li>• Testing, and commissioning.</li> <li>• Cyber security and asset management.</li> </ul> <p>By leveraging the experience and knowledge of Digital Substation Consultancy services, utilities and grid operators can benefit from:</p> <ul style="list-style-type: none"> <li>• Reduced costs.</li> <li>• Improved performance.</li> <li>• Increased flexibility of their digital substation systems.</li> </ul>	<p>50 Minutes</p>
<p><b>Q&amp;A and Discussion</b></p>		<p>20 Minutes</p>
<p><b>OMICRON Academy</b></p>	<p>The OMICRON Academy training courses are built around real testing situations and are ideal for technical staff from electrical utilities, industrial plants, equipment manufacturers and service companies.</p> <p>Contents range from gaining knowledge of assets and applications, fully utilizing the test equipment, and applying efficient test procedures to interpreting test and measurement results.</p> <p>Benefit from professional courses with expert trainers, full-scale training equipment, effective methodology and excellent customer care.</p>	<p>30 Minutes</p>
<p><b>Q&amp;A and Discussion</b></p>		<p>20 Minutes</p>
<p><b>Guided Company Tour</b></p>		<p>2 Hours</p>

## 2 Substation Automation Systems (SAS) Testing



Duration  
1 Day

Language  
English

Location  
OCC Building – Klaus, Austria

Date  
16/05/2023

### 2.1 Overview

Substation Automation Systems (SAS) are an essential part of modern substations. With IEC 61850 new possibilities have been introduced, but with these new possibilities comes an increased need for testing. Testing these modern systems can be very time-consuming especially if appropriate tools are not used, also because of the increased requirement for more regular firmware updates and with the need for future modification or extension, consistent and repeatable testing is crucial.

### 2.2 Agenda

#### 2.2.1 Day-2 – Morning Session

Topic	Description	Timing
Introduction	Meeting the team	15 Minutes
From Process to Control Centre: Fully automated closed-loop SAS testing	<p>Presentation</p> <p>The presentation covers innovative testing methods for digital substations. New features of StationScout, OMICRON's testing tool for the Digital Substation Automation System (DSAS), will allow fully automated testing of the DSAS in the factory, during commissioning but also during operation of the substation from the process level even up to the control center.</p>	30 Minutes

<b>Q &amp; A or Break</b>		15 Minutes
<b>Automation and Control system monitoring- A key to overcome challenges in IEC 61850 based substations</b>	<p>Interactive Discussion Forum Hybrid</p> <p>In this interactive session, OMICRON will provoke participants to collect incidents happening during the operation and maintenance of IEC 61850-based substations.</p> <p>A monitoring solution will be offered for troubleshooting, situational awareness, and providing easy access to operation engineers.</p>	45 Minutes

### 2.2.2 Day-2 – Afternoon Session

<b>Topic</b>	<b>Description</b>	<b>Timing</b>
<b>IEDScout 5.12</b>	<p><b>Live Demo with practical use cases</b></p> <p>Is an ideal tool for protection and substation automation engineers working with IEC 61850 devices. It provides access to Intelligent Electronic Devices (IEDs) and performs numerous useful functions when working with them. A new user interface assists to find all relevant information about the IEDs.</p>	2 Hours
<b>Q &amp; A or Break</b>		30 Minutes
<b>StationScout 2.20</b>	<p><b>Live Demo with practical use cases</b></p> <p>Is a combination of the MBX1 test set, the advanced firmware running on the test set, and the client software running on one or more PCs. The hardware provides cyber secure connections to the SAS and contains powerful and secure processing which is capable of advanced calculation and simulation. The product is available in several licenses.</p>	2 Hours and 30 Minutes

### 3 Cybersecurity for Power Grids



Duration  
1 Day

Language  
English

Location  
OCC Building – Klaus, Austria

Date  
17/05/2023

#### 3.1 Overview

Energy utilities are essential for supporting critical infrastructure. Recent developments in Digital Transformation have made them attractive targets for adversaries who are looking to disrupt their operations and the daily lives of those who are dependent on them.

With the continued growth and convergence of IT and OT networks, the attack surface for new threats is increasing within utilities and industrial control systems (ICS), adding to the complexity and the challenges of defending against them.

It is becoming more and more apparent that the energy sector around the world will need to increase its reliability and resilience as a result of the growing risk of power systems being compromised.

OMICRON introduces a wide range of solutions for Cybersecurity and Substation Automation Systems (SAS), and we will introduce some of them along with a live demonstration.

#### 3.2 Agenda

##### 3.2.1 Day-3 – Morning Session

Topic	Description	Timing
Introduction	Meeting the team	15 Minutes
Getting Started with Cybersecurity	<p><b>Presentation</b></p> <p>Objectives:</p> <ul style="list-style-type: none"> <li>Understand the basics of Cybersecurity.</li> <li>Differences in IT vs. OT Cybersecurity.</li> </ul>	1 Hour and 30 Minutes

	<ul style="list-style-type: none"> <li>National Cybersecurity Frameworks and Standards.</li> <li>Insights into the Attack Vectors of a typical Substation.</li> <li>Countermeasures for common Attack Vectors.</li> <li>The Importance of Incident Response Plan (IRP).</li> </ul>	
<b>Q &amp; A or Break</b>		15 Minutes
<b>Overcoming OT Challenges: Prioritize OT Security Actions with Insight into Active threats</b>	<p><b>Presentation</b></p> <p>Objectives:</p> <ul style="list-style-type: none"> <li>An overview of the NIST CSF Framework.</li> <li>The architecture of a Substation.</li> <li>Application of Intrusion Detection Systems (IDS) in Substations.</li> <li>The StationGuard Solution: <ul style="list-style-type: none"> <li>StationGuard Asset Discovery and Management.</li> <li>Functional Monitoring in Substation Communication.</li> <li>StationGuard Operating Modes.</li> <li>StationGuard Integration Option.</li> </ul> </li> <li>GridOps 1.0 – The Central Management System for StationGuard <ul style="list-style-type: none"> <li>GridOps Global Asset Inventory.</li> <li>GridOps Vulnerability Management.</li> <li>GridOps Advance Analysis and Alert Management.</li> </ul> </li> </ul>	1 Hour and 30 Minutes
<b>Q &amp; A</b>		30 Minutes

### 3.2.2 Day-3 – Afternoon Session

<b>Case Study</b>	<b>Presentation</b>	
<b>Notes from the Field: Securing Station and Process Bus</b>	Improving Operational Efficiency and OT Security for Stadtwerke Kempen GmbH - Germany	30 Minutes
<b>Q &amp; A or Break</b>		30 Minutes



<p><b>The StationGuard Solution</b></p>	<p><b>Live Demo with Practical Use Cases</b></p> <ul style="list-style-type: none"> <li>• Deployment of StationGuard 2.20 on MBX1/RBX1 Platform.</li> <li>• Deployment of GridOps 1.0.</li> </ul> <p>The list of standard use cases for PoC:</p> <ul style="list-style-type: none"> <li>• Assets Identification.</li> <li>• Normal and Abnormal operation.</li> <li>• Cyber Attacks Simulation</li> <li>• Maintenance and Testing Scenarios.</li> <li>• Functional Monitoring Scenarios.</li> <li>• Asset Inventory and Log Management.</li> <li>• Vulnerability Management.</li> <li>• Integration with Third-Party Systems.</li> </ul>	<p>3 Hours</p>
<p><b>Q &amp; A</b></p>		<p>30 Minutes</p>
<p><b>Vision for GridOps 2.0 Power Grids Intelligence Platform</b></p>		<p>30 Minutes</p>

**OMICRON** is an international company serving the electrical power industry with innovative testing and diagnostic solutions. The application of OMICRON products allows users to assess the condition of the primary and secondary equipment on their systems with complete confidence. Services offered in the area of consulting, commissioning, testing, diagnosis and training make the product range complete.

Customers in more than 140 countries rely on the company's ability to supply leading edge technology of excellent quality. Service centers on all continents provide a broad base of knowledge and extraordinary customer support. All of this together with our strong network of sales partners is what has made our company a market leader in the electrical power industry.

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

[www.omicronenergy.com](http://www.omicronenergy.com)