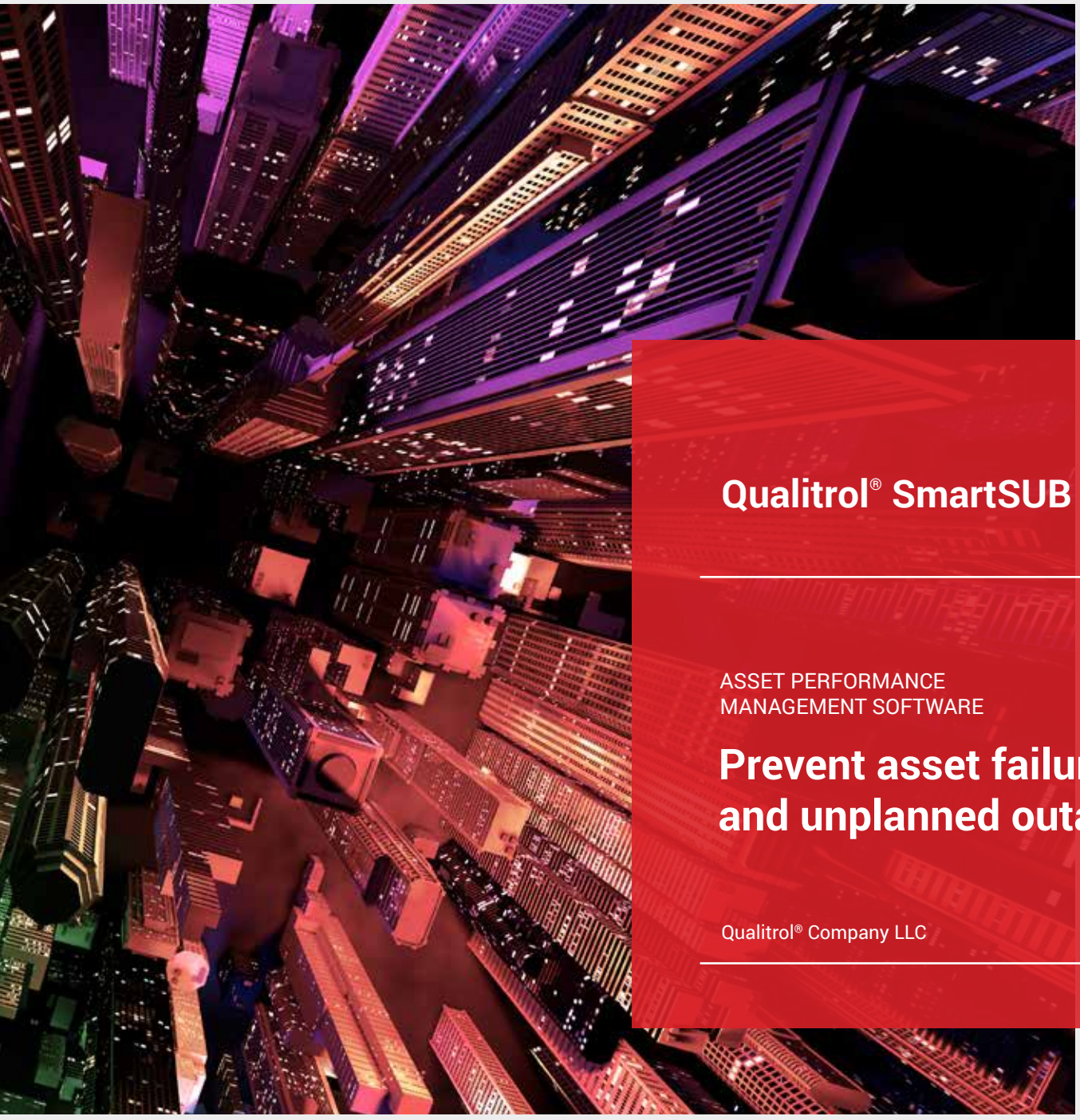
QUALITROL
Defining Reliability

ASSET PERFORMANCE MANAGEMENT SOFTWARE



Qualitrol® SmartSUB

ASSET PERFORMANCE
MANAGEMENT SOFTWARE

Prevent asset failures and unplanned outages

Qualitrol® Company LLC

Power utility companies are facing unprecedented challenges, including an aging field infrastructure, adapting to new technologies, and new ways of working in the office. Your substation assets are working harder than ever, due to the stress of longer runtimes to meet an increasing demand for energy. Additionally, the use of renewables is pushing assets to work in ways far beyond their original intent and design. Internally, utilities are facing competing priorities like delivering a continuous flow of electricity, eliminating unplanned outages, and making data driven maintenance decisions to reduce OpEx and CapEx spend. Your resources, both mechanical and human, are being stretched to their limits.

Making informed and educated maintenance decisions is proving to be a challenge due to the shortage of skilled workers, fueled by their growing number of retirements. So when it comes to making decisions that can have financial impacts in the tens of millions of dollars, immeasurable health and safety concerns, and environmental impacts, power utilities need a solution that utilizes industry leading monitoring and diagnostics to support the shift from preventative, time-based maintenance to condition-based, predictive maintenance, and eventually prescriptive maintenance.

SmartSUB is Qualitrol's own Asset Performance Management Software. Our platform utilizes our homegrown monitoring and analytics capabilities to eliminate unplanned outages, make informed and data-driven maintenance decisions, increase your supply KPIs, and ultimately drive down your O&M spending.

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Our asset performance management solution is grounded in three modules, which are designed to help our customers along their journey to digitize their data. **Customers can use our modules to expand and grow as their digital transformation matures.**

MONITORING MODULE

The **Monitoring Module** is the base for our solution. The goal is to help solve the first problem of "big data", gathering it. Often we see there is too much data located in too many systems, which proves to be challenging to collect and analyze when needed. This module will bring all your data into a centralized location utilizing industry and IoT standard protocols, and integrations whether that is straight from the IED or from a 3rd party system such as a historian. After centralizing your data, SmartSUB will notify users of alarms, help them visualize and investigate data trends, and allow users to build and schedule reports.

ANALYTICS MODULE

The **Analytics Module** is for those customers who have consolidated their data with the Monitoring Module and are ready to begin digging into that data to unlock more insights and potential savings and optimize asset performance. SmartSUB is packed full of our own in-house analytics that ranges from more simple physics-based calculations derived from industry standards, such as IEEE, IEC, Cigre, etc. for detecting faults to advanced, complex machine learning and artificial intelligence algorithms.

MAINTENANCE MODULE

The **Maintenance Module** is designed to connect to upstream systems such as a CMMS or WFMS, with downstream systems, utilizing their input automatically instead of manually, creating a closed-loop system for their maintenance process. This is the final piece to help our customers realize the full potential of having their systems communicating and their data in one platform.

MONITORING MODULE

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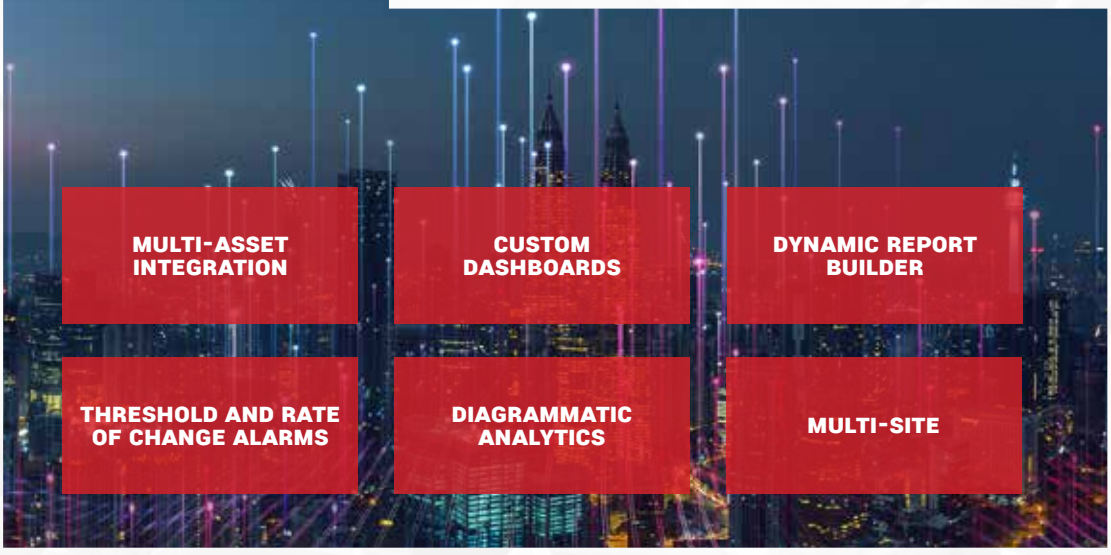
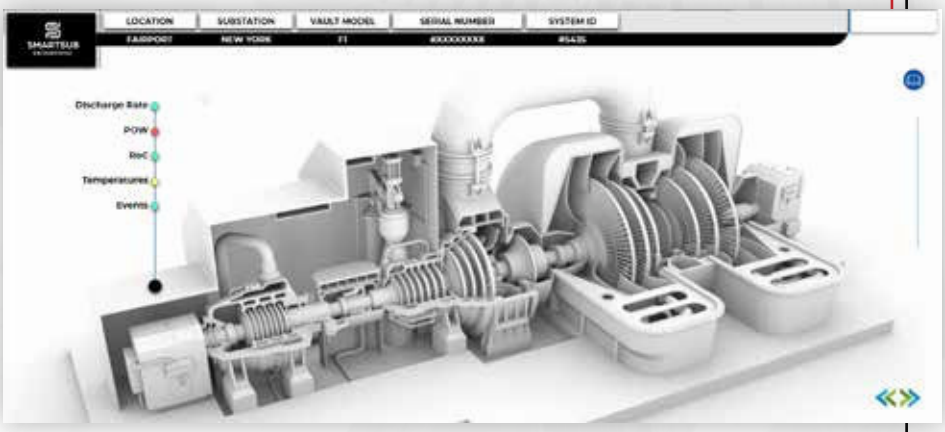
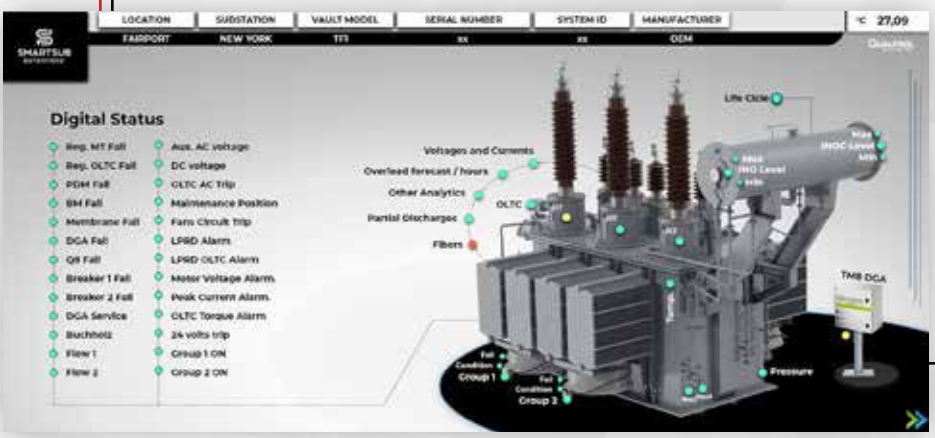
The Monitoring Module is the base for the SmartSUB solution. Here we utilize industry and IoT standard protocols including IEC-61850, IEC-61870, DNP3.0, and MODBUS in order to bring all of your asset data, such as transformer, breaker, gas insulated switchgear, generator, etc., into one system.

Customers can configure dashboards to meet the needs of their users and support their workflows to visualize and triage alarms, investigate data trends, and build reports using data from all of their integrated assets without leaving SmartSUB.

FEATURES:







MONITORING MODULE

ANALYTICS MODULE

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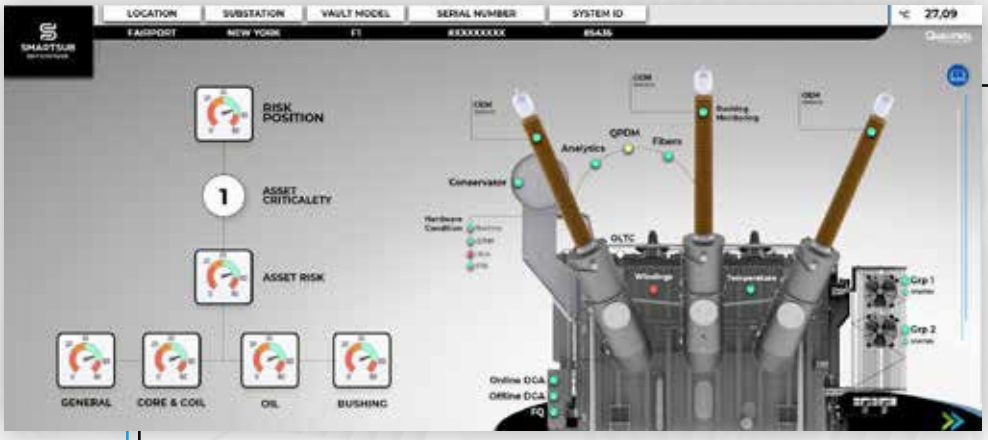
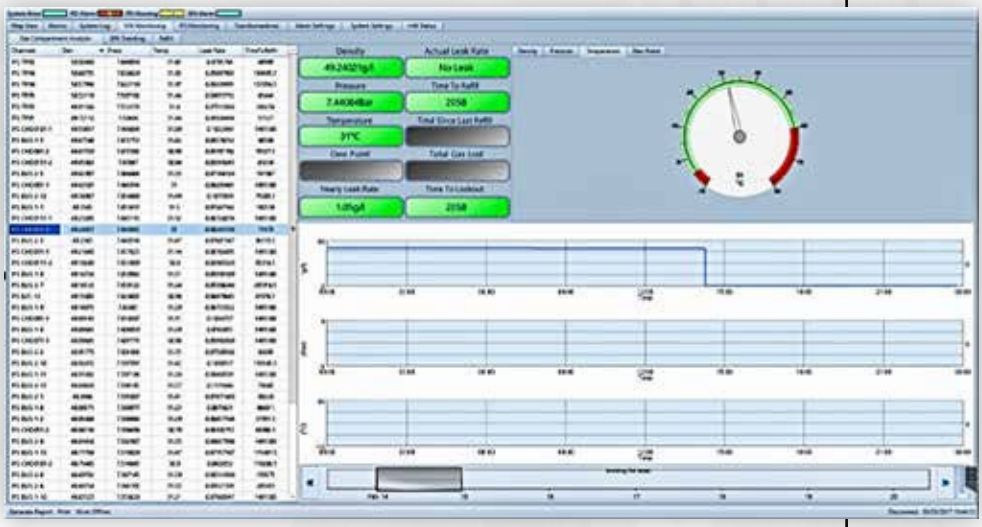
Our Analytics module is built on a rules engine powered by a Rete 2.0 algorithm. This allows us to create rules to meet industry standards from specifications and technical guides from groups like IEEE/IEC/CIGRE, enables our own suite of in-house developed algorithms, and also allows customers to integrate their own homegrown rules.

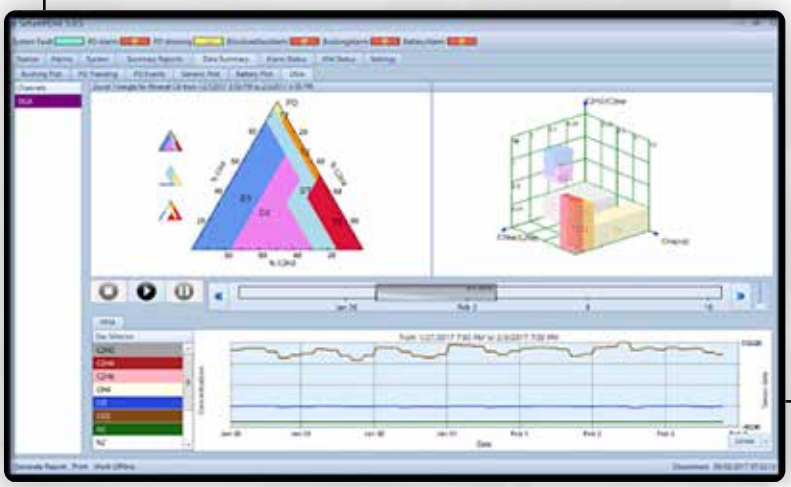
The Qualitrol-developed algorithms range from simple physics-based calculations to advanced algorithms that utilize machine learning and artificial intelligence. These analytics feed into our Asset Risk Index. Our risk index highlights which assets are most at risk of failure and the root cause to why the asset is trending toward failure. Equipped with this type of data, our customers are empowered to make faster, more informed maintenance decisions.

FEATURES:

- FAILURE MODE IDENTIFICATION
- DYNAMIC RULES ENGINE
- ANALYTICS INTEGRATION INTERFACE
- ASSET RISK INDEX
- ADVANCED ML/AI ANALYTICS
- PREDICTIVE ANALYTICS







ANALYTICS MODULE

MAINTENANCE MODULE

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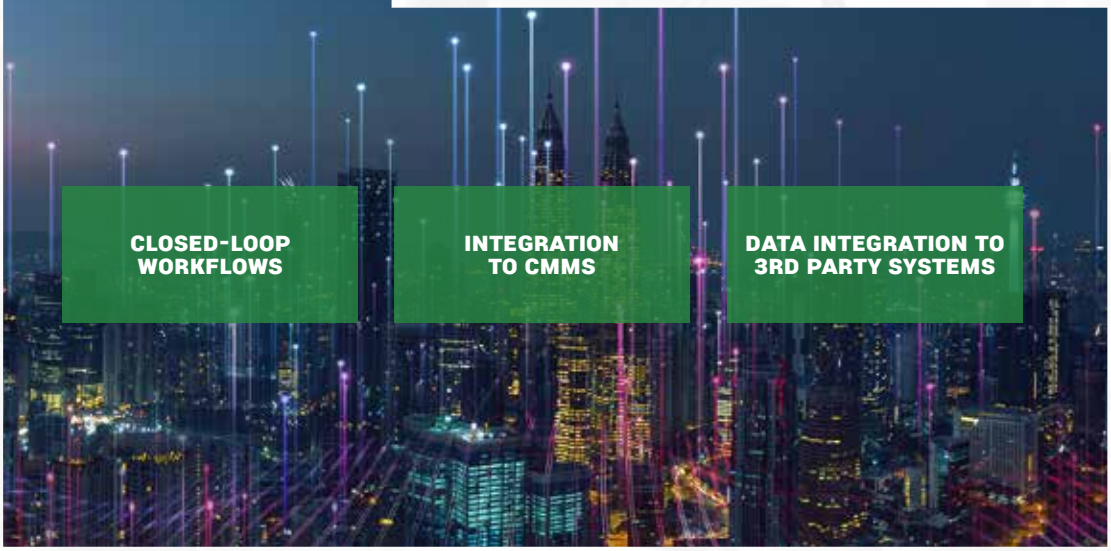
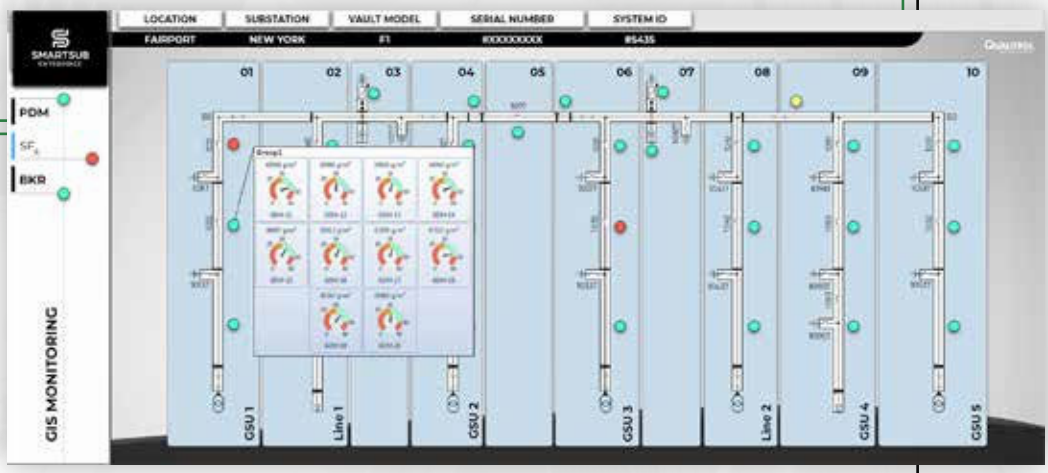
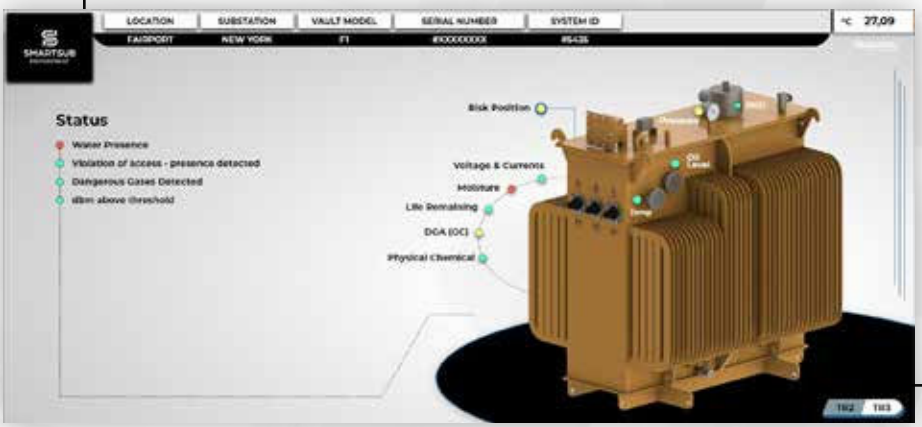
Our Maintenance Module is designed to connect SmartSUB to upstream systems such as a CMMS or WFMS. The goal is to enable customers create a closed-loop system for their maintenance process from alarm to fault identification to work order to repair or asset replacement.

Having connected their systems, clients are able to see the real-world condition of their assets reflected in a digital environment. This will ensure that they are making the most informed decisions to protect the health of their assets and grid, allowing them to realize the maximum benefit of having actionable data and interconnected systems.

FEATURES:







MAINTENANCE MODULE

VISION

To be the leading provider of essential technology that enables the delivery of uninterrupted power **to create a safer more productive world** where no one has to live through a power outage again.

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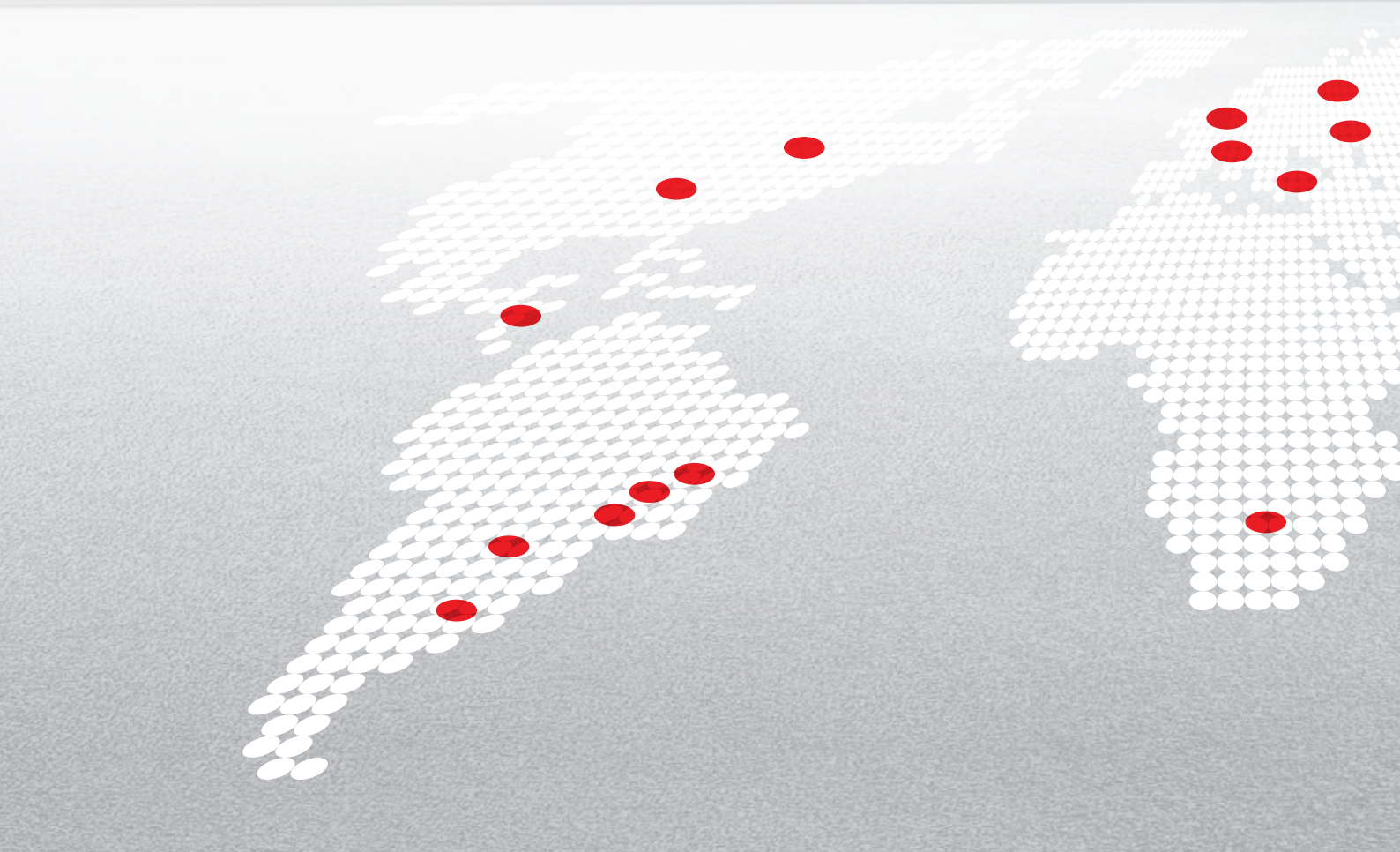

CYBER SECURITY

In today's modern world, cyber security is a critical piece of your digital infrastructure. Keeping your data protected and secure from outside threats is paramount. At both Qualitrol and Fortive, we take the security of our customer's digital data seriously.

We use state of the art communications protocols and security measures and examine security implications at every stage of product development.

To validate the robustness of our platform, we employ industry-leading 3rd-Party testing. SmartSUB follows secure principles and complies with key standards including, but not limited to the following:

> Centre for Internet Security Benchmarks (CIS)
> NERC CIP
> NIST SP 800
> IEC 62443

MONITORING ASSETS ACROSS
305 SUBSTATIONS

SPREAD OUT AMONG
15 COUNTRIES

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Contact Us

Qualitrol® LLC

1385 Fairport Road
Fairport, New York 14450, USA
585-643-3717

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www.qualitrolcorp.com