

**Products & Solutions**

# Easy Data

From the substation to the enterprise to the grid edge

NovaTech Automation delivers seamless data integration between electric utility substations, enterprise SCADA, and grid edge devices. Our Made-in-the-USA RTU data gateways, power meters, network switches and satellite clocks are engineered for precision, reliability, and ease-of-use. Our solutions leverage open tools and standards to maximize your investments in automation. We offer design, build, and deployment of packaged solutions from cabinets to panels to custom and pole top enclosures. We help you modernize and operate your grid at peak efficiency.



10-year No Hassle Warranty



Made in the USA



Net Zero Committed

**98.7%**

Of our clients would  
recommend us to a colleague

## Orion

### Substation Automation

Yeah. It'll do that.

pg. 6

## Hermes

### Gigabit Ethernet Switches

Futureproof your network.

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## Kronos

### Satellite Clocks

On time. All the time.

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Easy to use, hard to beat.

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Powering reliability, fleetwide.

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Design, build, install and retrofit.

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Design and deploy with no annual fees.

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Infinitely configurable.

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# Solutions overview

## Substation Automation

The Orion family supports all substation automation applications—RTU, HMI, Math & Logic, Tile Annunciation, SOE Recording, FLISR, and more—in a rugged platform that can be redundant.

## Virtual Digital Substation

NovaTech is a proud member of the vPAC Alliance. Our OrionVX integrates all of our Orion processes—Math & Logic, Alarming, HMI, protocols, etc.— to run in a virtual machine on a standard industrial server or embedded within partner products.

## Pole top, Vault, and Unit Substation Automation

Smaller Orions can provide remote control and monitoring of the switches and other apparatus in unit and vault substations.

## SCADA Systems

NovaTech SCADA systems offer a range of cost-effective solutions from simple reporting and notification HMIs, to more complex functions like ADMS, FLISR and DERMS, all with no annual fee. OrionVX can also be used as a front end processor for more complex SCADA systems.

## RTU Modernization

NovaTech provides retrofit solutions for most common legacy substation RTUs, including D20/200, Telegyr, Telvent, SNW, and ACS. We also provide solutions to replace legacy Modicon® and Allen Bradley® PLCs.

## Shore Power Automation

NovaTech has partnered with Watts Marine to provide a clean dockside electric power solution—an alternative to dirty onboard diesel-generated electric power for ships in harbor.

## DER Integration

NovaTech products serve as data gateways for many US wind power substations, act as inverter controllers and cyber secure protocol converters for grid scale solar fields, and are installed in numerous hydropower facilities worldwide. We also provide generation synchronization transducers for generators and fast frequency measurements for grid scale battery ancillary services enablement.

## Voltage Optimization

Growth in Distributed Energy Resources (DERs) is driving a need for fast and precise voltage, frequency, and fault data along a feeder. The NovaTech Distribution Grid Monitor is a configurable and easy to install packaged solution for use in Volt-VAR Optimization, Conservation Voltage Reduction, and FLISR schemes.

## Electric Rail Automation

Orion is applied in snow melting, track energization, and RTU applications, notably when modernizing legacy electric rail substations.





OrionOS

# The easiest way to automate the power grid

OrionOS provides common software, firmware, and configuration tools for all Orion products, and for all grid automation applications, reducing learning curves, speeding up implementation, and simplifying security and compliance issues.



# All Orions share the same security and software tools:



## NERC CIP Cybersecure

All Orions share the same security features. These include Linux OS, support for Integrity Measurement Architecture (IMA), a stateful firewall, secure protocols (HTTPS, SSH, SFTP), strong passwords and password rules, RADIUS and LDAP authentication, tiered access user groups, and syslog.



## Tile Alarm Annunciator

A pre-engineered alarm tile webpage is available for replacing hard-wired annunciators. This annunciator provides full software configurability for rows, columns, and tile names.



## Redundancy

Orions can be configured as a hot-standby redundant pair to support applications as a SCADA RTU, Alarm Annunciator, substation HMI, SOE Recorder, and substation controller. Both Orions run identical NCD configurations, logic and webpage configurations, and configurations are auto-replicated between the two.



## Extensive Protocol Library

50+ protocols, including IEC 61850, DNP3, SEL®, IEC 60870-5-101/103/104, Modbus, and legacy protocols. SEL Protocol enables engineering access, IRIG-B support, and automatic retrieval of SEL Event Reports. SNMP Manager monitors switches, routers, servers, and other network equipment.



## SEL Relay Integration

Data and records in SEL relays can be accessed by Orion and delivered to relay engineers and to SCADA. Engineers can also pass through Orion to access SEL relays using ACSELERATOR® and Blueframe®.



## Math & Logic

A calculator is available enabling users to easily create equations using common Excel-style operators and notation including  $*$  / ( ) + - ^ SQRT() ABS() and ROUND(). IEC 61131-3 and Lua are also available.

# Orion Automation Platforms

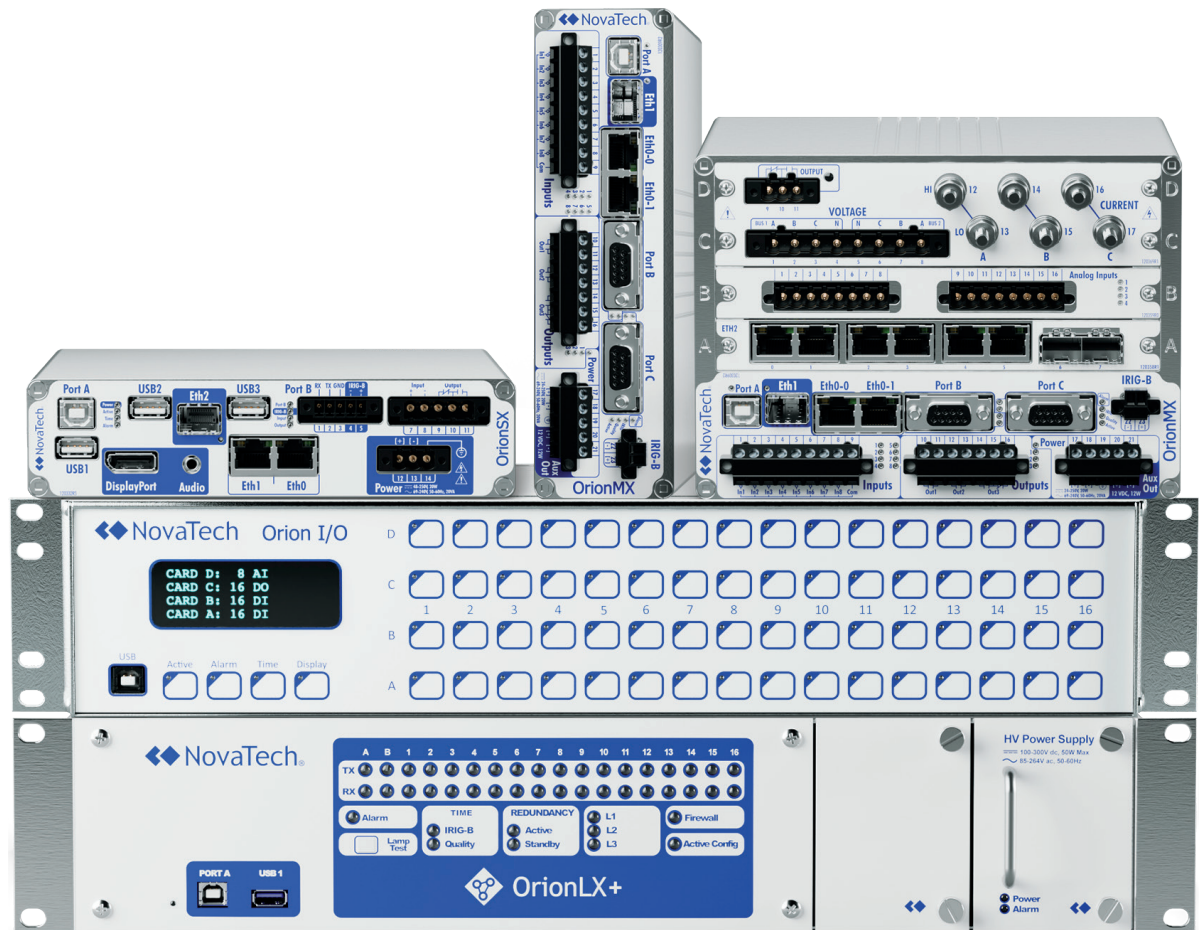
## Yeah. It'll do that.

Orion Automation Platforms combine unparalleled flexibility and ease-of-use in a variety of form factors and hardware options.



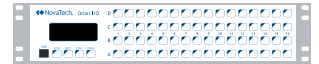
*These units really outperform competitor RTUs on every level.*

- Systems Engineer, Midwest US IOU



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	OrionLX+	OrionMX	OrionSX	OrionVX	Orion I/O
<b>Use Case</b>	<b>Large scale applications in new / retrofit substations</b>	<b>Pole tops, vaults, and small substations</b>	<b>Data collection, protocol conversion, and HMI server</b>	<b>Front End Processor and virtual substation RTU</b>	<b>Hardwired I/O</b>
<b>Mounting</b>	19" rack	Surface, panel, 19" rack, or DIN rail	Surface, panel, 19" rack, or DIN rail	As per server	19" rack or surface
<b>Dimensions</b>	19"W x 3.5"H x 13.5"D (2 RU)	7"W x 2"H x 6"D	7"W x 1.75"H x 6"D	"	19"W x 3.5"H x 7"D (2 RU)
<b>Power Supply</b>	Redundant hot swappable 125-250V dc/120-240V ac or 24-48V dc	Single 24-250V dc/69-240V ac or 12-24V dc	Single 48-250V dc/120-240V ac	"	Single 48-250V dc/120-240V ac or 12-24V dc
<b>Direct Video</b>	1 DisplayPort	None	1 DisplayPort	None	None
<b>Ethernet Ports</b>	2 RJ45 & <i>Optional NovaCards:</i> <i>NC0: 1 RJ45</i> <i>NC1: 1 RJ45 and 2 SFP</i> <i>NC2: 12-port RJ45 switch</i> <i>NC3: 1 pair of HSR/PRP ports, 1 RJ45 port, 1 SFP slot</i>	2 RJ45, 1 SFP	2 RJ45, 1 SFP	As per server	1 RJ45, 1 SFP slot or 1 RJ45 and a 3-port RJ45 switch or 1 SFP slot, 2 RJ45 HSR/PRP ports
<b>Serial Ports</b>	Up to 17 RS232/485, ST Fiber, V-pin Fiber, or bit synchronous	Up to 18 RS232/485, ST Fiber	1 RS232	None	1 RS232/485
<b>SCADA Points</b>	40,000 <i>60,000 or 80,000 optional</i>	600 <i>10,000 optional</i>	40,000 <i>60,000 or 80,000 optional</i>	80,000	600
<b>Device Connections</b>	256 <i>512 optional</i>	128	256	512	64
<b>I/O</b>	Up to 20DI , 4DO + Alarm	Up to 40DI, 19DO, 32AI, CT, PT	1 DI, 1 DO	None	Up to 64DI, 64DO, 32AI, 32AO
<b>Orion Redundancy Support</b>	Yes	Yes	Yes	N/A (hypervisor)	No

*Options are italicized*

# OrionLX+

## For larger substations and the most complex applications



The most powerful member of the Orion family, the OrionLX+ takes on all automation applications in T&D substations. Modular serial cards and network options enable the OrionLX+ hardware to leverage existing equipment and minimize upgrade effort.

### Optional NovaCards

**NC0:** One 10/100/1000Mbps Ethernet port and 4 DI / 4 DO

**NC1:** One 10/100/1000Mbps RJ45, 2 SFP ports and 4 DI / 4DO

**NC2:** Twelve 10/100/1000Mbps Ethernet ports

**NC3:** Pair of HSR/PRP ports as RJ45 and SFP, 1 RJ45 Ethernet Port, 1 SFP Slot, 4 DI / 2 DO

**NC4:** 16 Digital Inputs





# OrionMX

## Optimized for smaller spaces

Available in three case sizes, the OrionMX can be configured with a variety of expansion cards for automation and metering applications in smaller distribution and unit substations, on pole tops, and in vaults.

2S and 4S Case expansions  
offer 2 or 4 additional card slots

### OrionMX Expansion Cards

**F1:** 4 serial fiber ports

**S1:** 4 RS232/485 serial ports

**D1:** 8 digital inputs & 4 digital outputs

**M1:** Meter card with 5 or split core CT & PT inputs

**M2:** Meter card with 20 Amp CT & PT inputs

**C1:** Line 2 meter card (paired with M1)

**E1:** 8 Ethernet ports

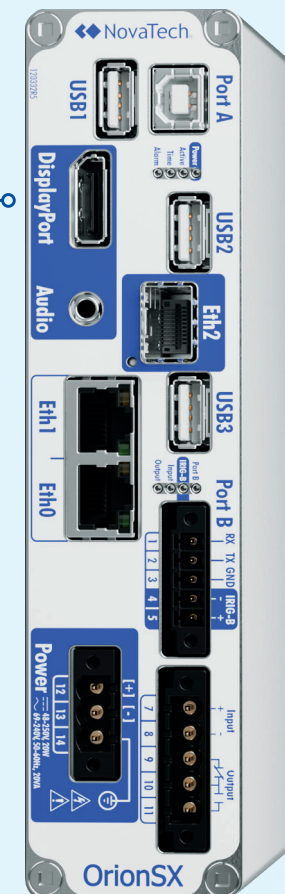
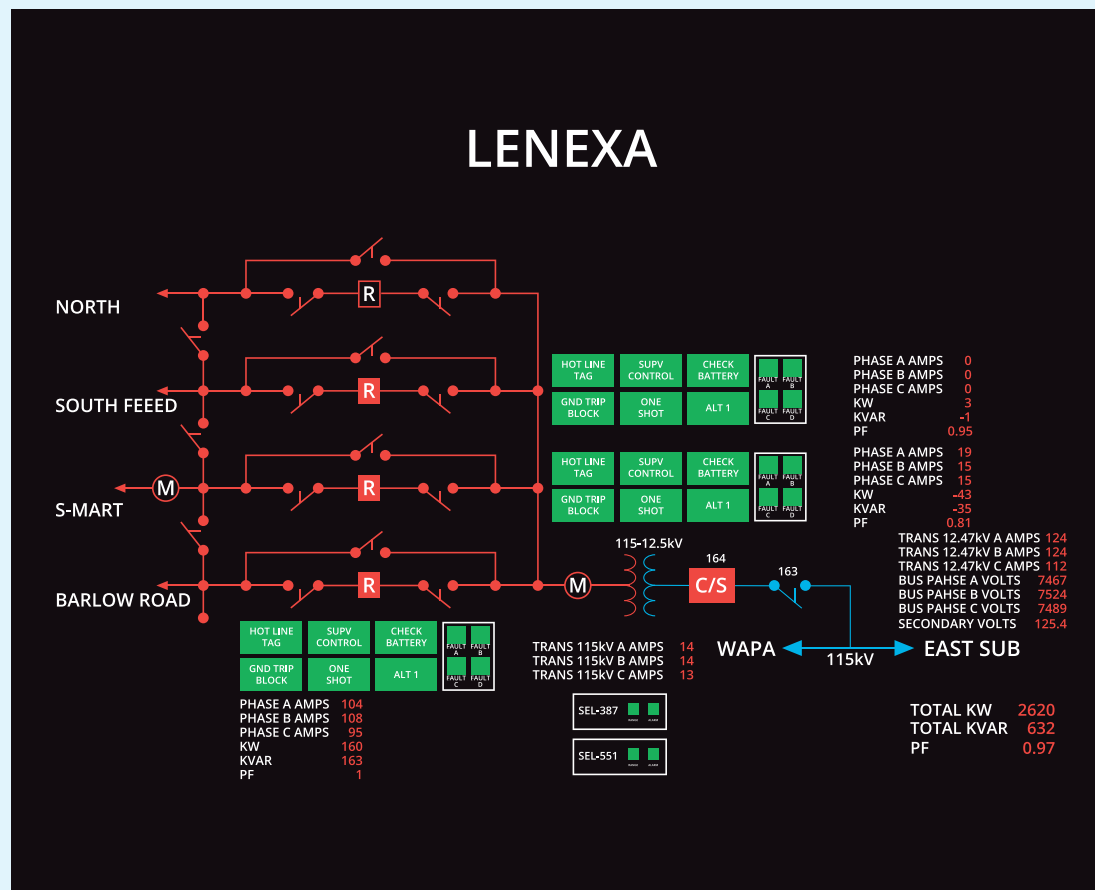
**A1:** 4 analog input



# OrionSX

## Data and HMI server

Compact and powerful, the OrionSX is optimized for data aggregation, protocol conversion and HMI applications for digital substations.





OrionVX

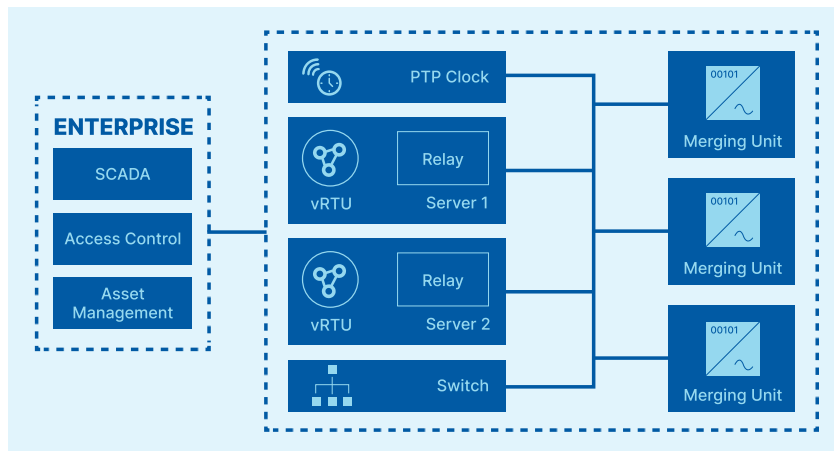
# Virtual RTU and SCADA front end

OrionVX is virtualized OrionOS software that runs on standard servers or embedded instances to enable next generation enterprise SCADA and virtual digital substation applications.

Member



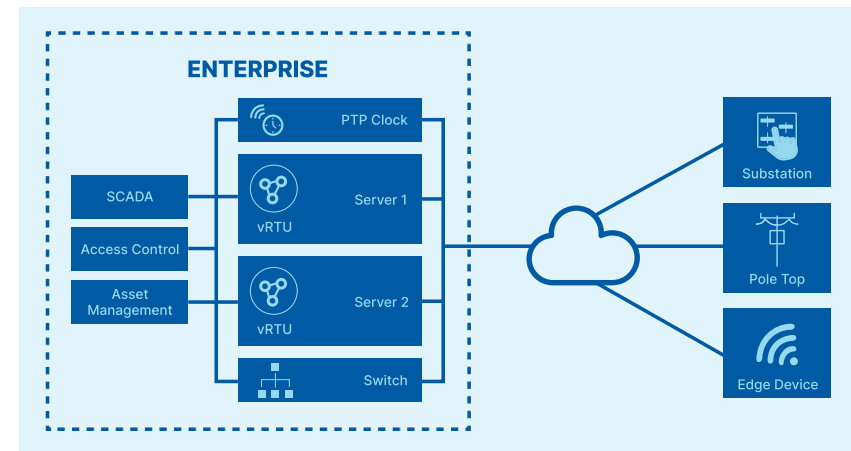
## OrionVX in a Digital Substation



### Virtual substation RTU

Running on a server in a substation alongside a virtualized protection relay, OrionVX is an ideal solution for the virtualized protection and control concept with simplified management and a reduced number of hardware appliances.

## OrionVX as a Front End Processor



### Enterprise front end processor

At the enterprise level, OrionVX can act as a front end processor for the collection and normalization of data from substations, pole tops, vaults, and IOT devices to SCADA, DERMS, ADMS and asset management systems.

# Orion I/O

## Easy to see and retrofit



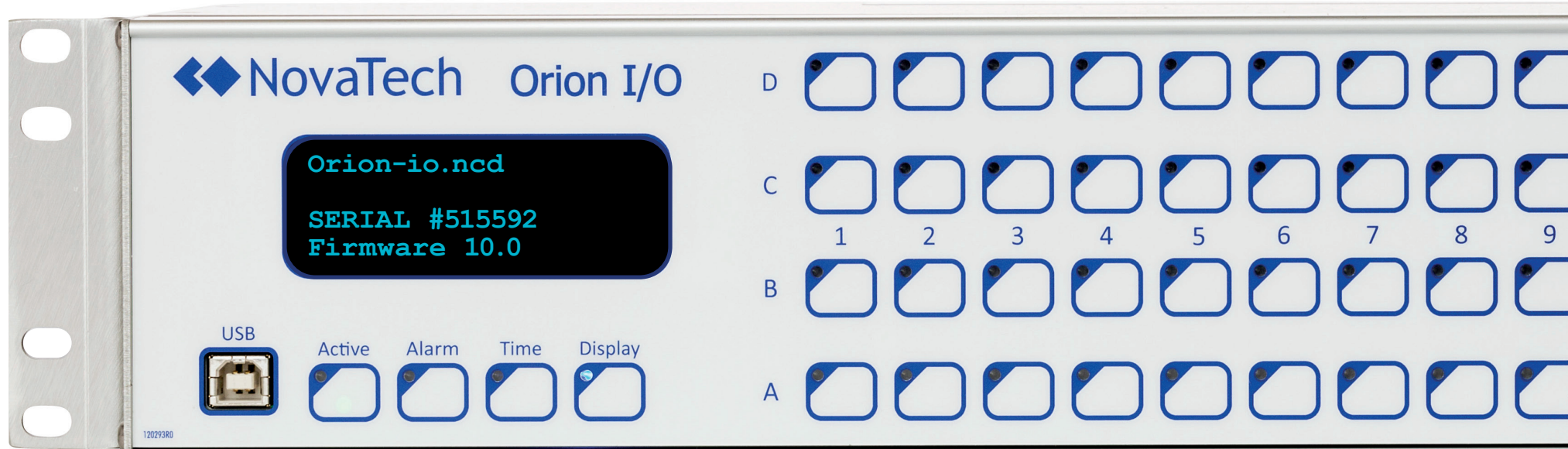
Orion I/O provides the most comprehensive solution for substation automation, featuring high density, I/O card flexibility, and unique local display for point names and status.

Other examples of the Orion I/O 4-line x 20-character display:

```
CARD D: 8 AI
CARD C: 16 DO
CARD B: 16 DI wetted
CARD A: 16 DI Wetted
```

```
Trans Top Oil Temp
175 degrees F
.642mA
```

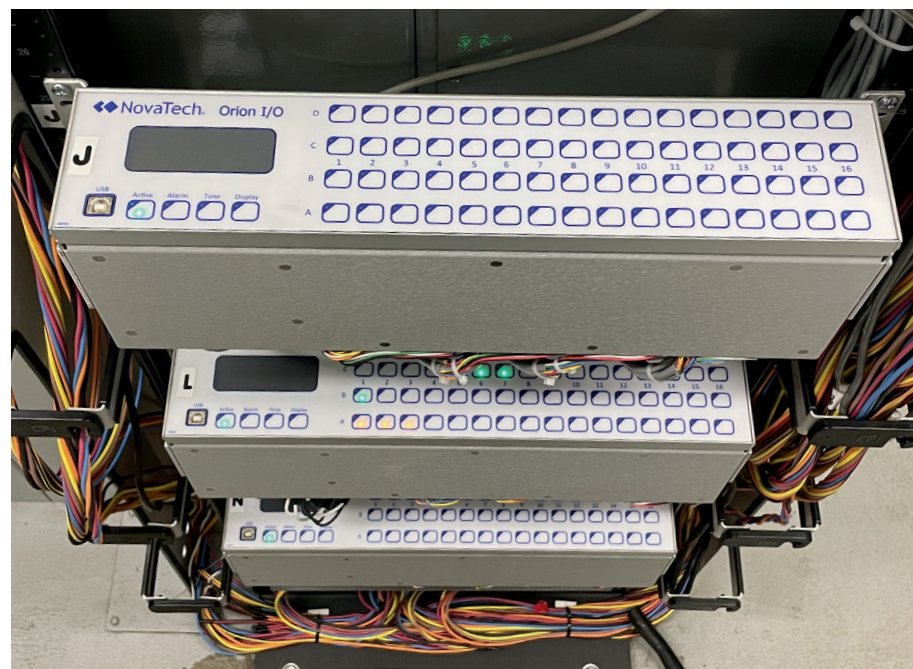
```
CB #23 Bakersfield
17.59.08.960
Breaker Open
```



## I/O Card Options

- 16 Digital Input Card
- 16 Digital Input Wetted
- 16 Digital Output Card (NO or NC)
- 16 Digital Output High Power Card
- 8 Digital Input / 8 Digital Output High Power Combination Card
- 8 Analog Input Card
- 8 Analog Input Flex Card with HV Input
- 8 Analog Output Card

## Retrofit Solutions



We offer standard and custom retrofit solutions for most of the common legacy RTUs: D20/D200, Telvent, Landis & Gyr, ACS, and Systems Northwest. Many of our retrofit solutions do not require lifting of field wiring.

# Hermes Gigabit Ethernet Switches

## Futureproof your substation networks

### Hermes 1000

#### 24-Port Unmanaged Gigabit Ethernet Switch

Engineered for reliable operation in harsh substation environments.



#### Gigabit Ethernet

- 24 Gigabit (10/100/1000Mbps) RJ45 ports

#### Plug-and-Play Operation

- No configuration required, enabling effortless deployment and maintenance

#### Rugged Design

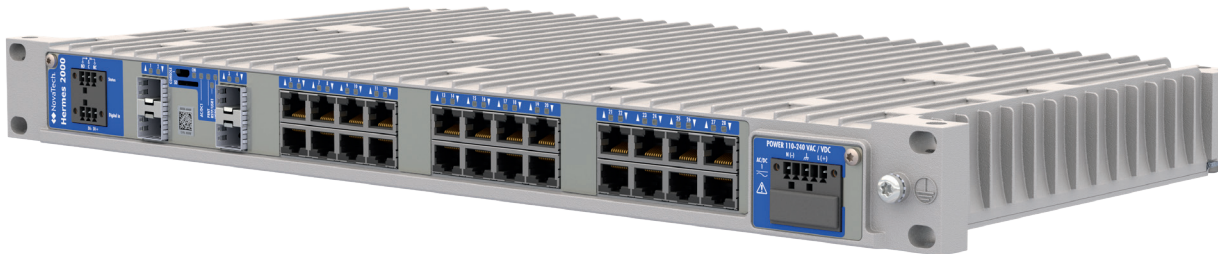
- Wide operating temperature range (-40° to 70°C)
- Compact, fanless aluminum enclosure



# Hermes 2000

## IEC 61850-3 Compliant Layer 2 Gigabit Ethernet Switch

Hermes 2000 delivers high performance networking for protection and control applications, and offers advanced features including VLAN, PTP transparent clock function, IGMP snooping, QoS, and -40° to +70°C operating range.



### Redundant Networking

- PRP transparency with RSTP or FRNT protocols ensure rapid network recovery
- PTP transparent clock function maintains network time

### Secure

- IEEE 802.1x and VLAN support for securing network access and traffic
- HTTPS and SSHv2 for secure configuration

### Easy Configuration

- CLI for local configuration
- WebUI for remote configuration
- SD card for fast configuration cloning



## Kronos Satellite Clocks




# Better time in less time

Kronos Satellite Clocks offer solutions for both traditional and network-based time distribution, providing high accuracy, long holdover, and versatile configuration options. With multi-constellation support for GPS, BeiDou, GLONASS, and Galileo, Kronos clocks ensure rapid signal acquisition and industry-leading accuracy as low as 20ns.



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	<b>Series 2P</b>	<b>Series 2R</b>	<b>Series 3R</b>
<b>Mounting</b>	Panel	19" rack	19" rack
<b>Front Panel Height</b>	1RU	1RU	1RU
<b>Accuracy</b>	60ns	60ns	20ns
<b>Oscillator</b>	TCXO	TCXO	TCXO or OCXO
<b>Ethernet Ports</b>	1 copper port	1 or 2 copper ports	4 SFP slots, 1 copper port
<b>HSR/PRP</b>	No	No	Yes
<b>NTP/SNTP</b>	Yes	Yes	Yes
<b>PTP (IEEE 1588v2)</b>	No	No	Yes
<b>IRIG-B Outputs</b>	Up to 4	Up to 12	Up to 12
<b>Redundant Power Supply</b>	No	Optional	Optional
<b>Antenna cable-delay compensation</b>	Yes	Yes	Yes
<b>Out-of-bound Alarm</b>	Yes	Yes	Yes
<b>Open/Short Antenna Alarm</b>	Yes	Yes	Yes
<b>Web-based Configuration</b>	Yes	Yes	Yes
<b>SNMP</b>	Yes	Yes	Yes

## Bitronics Power Measurement

# Easy to use, hard to beat

Bitronics was the first to digitize power metering in 1982, and today our meters, digital transducers, distributed recorders, and Distribution Grid/Line Voltage Monitors are used worldwide.

Bitronics panel meters measure and displays Amps with Demand, Voltage with Min/Max, and a wide range of three-phase measurements. SCADA transducers offer the same features without the display. With redundancy support through DLR, our synchronizing transducers are used in sync-check and auto sync applications.

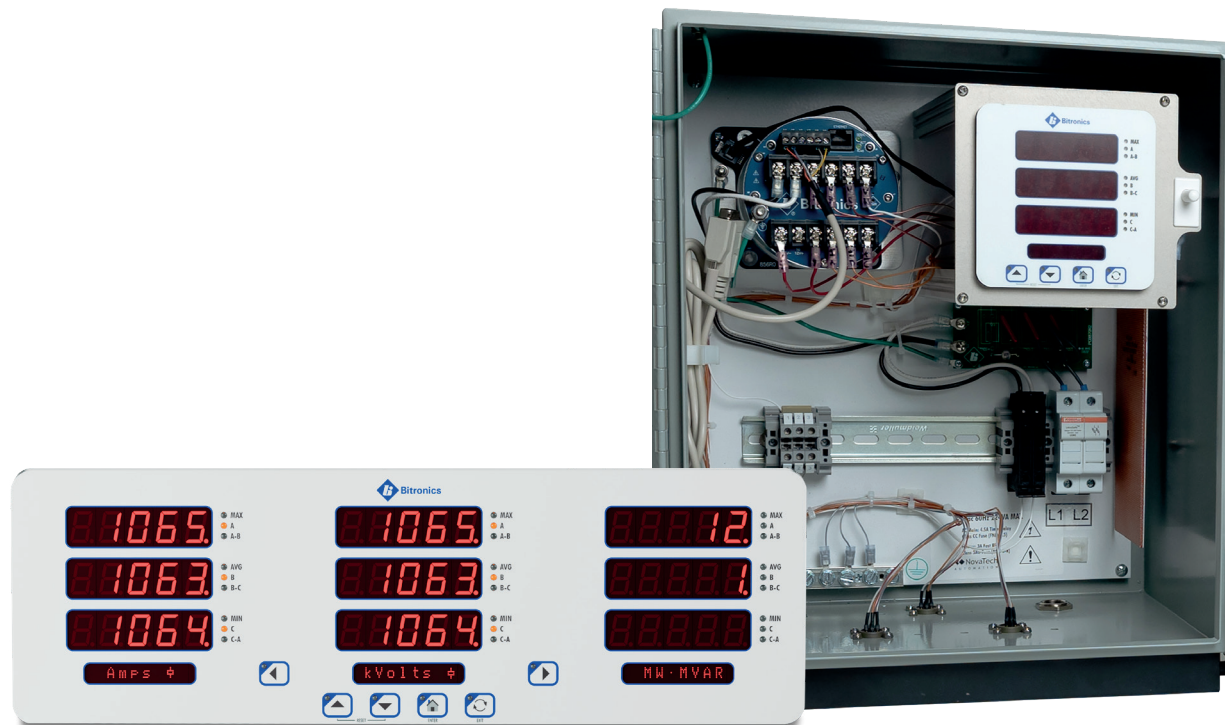


*What we like about Bitronics Meters is their consistency and accuracy.*

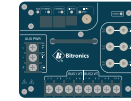
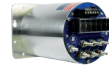
- Engineer, Western US Testing Lab



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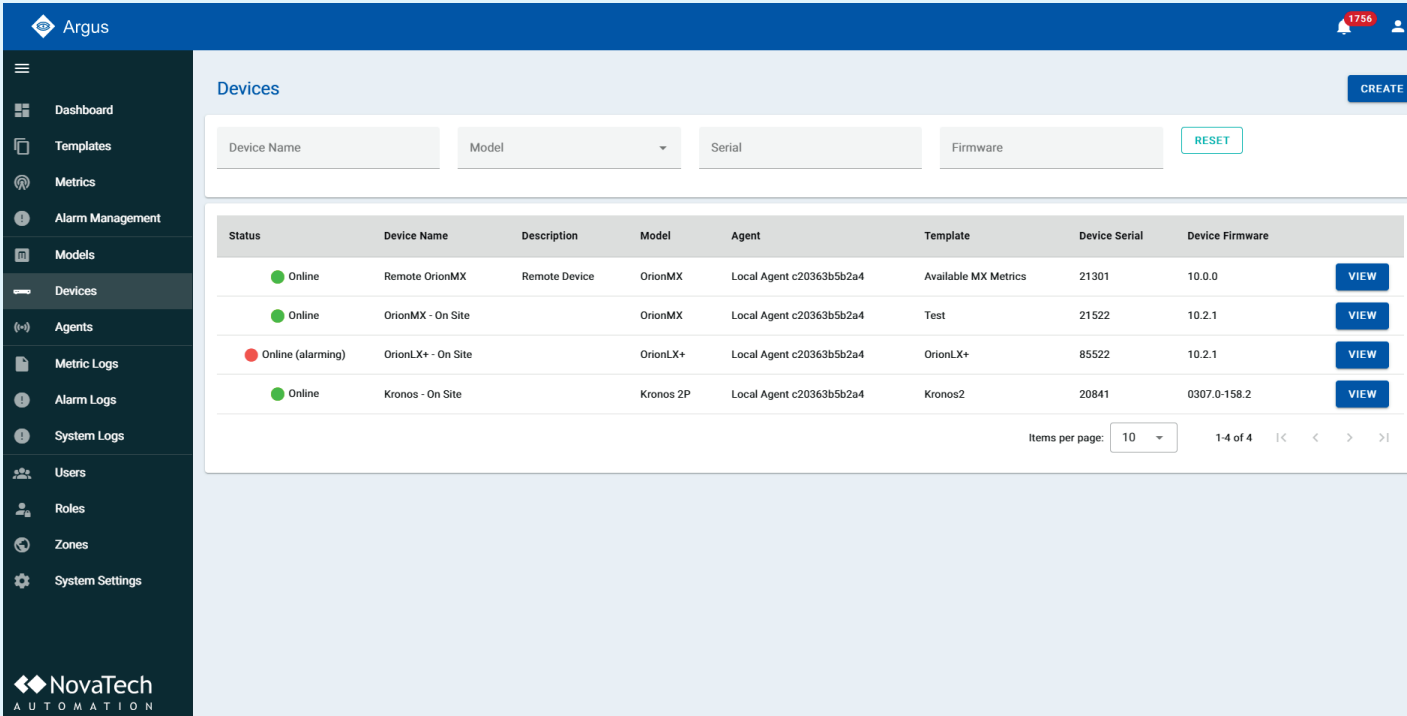


	Panel Meters	SCADA Transducers	M350	Synchronizing Transducer
<b>Full Set of 3-phase Power Measurement</b>	Yes	Yes	Amp/Demand (A3); Volt/Min/Max (V3)	Yes
<b>0.2% Revenue Accuracy</b>	Yes	Yes	N/A	Yes
<b>.001Hz Accuracy</b>	Yes	Yes	N/A	Yes
<b>Current Input Range</b>	1A, 5A, 20A	1A, 5A	1A, 5A (M350A3)	1A, 5A
<b>Split Core CT Option</b>	1A, 5A	1A, 5A		
<b>Voltage Input Range</b>	120V ac	120V ac	120V ac (M350V3)	600V ac
<b>DNP3/Modbus Serial and TCP (Server)</b>	Yes	Yes	Yes	Yes
<b>No of 3-Line, 5-Digit Displays</b>	1, 0, or 3	1, 0, or 3	1	1-Detached
<b>IEC 61850 or EtherNet/IP</b>	Yes	No	No	Yes
<b>Data Trending</b>	Yes	No	No	Yes
<b>Definite Time Overcurrent Relay Element</b>	Yes, M661P3 for DGM	No	No	No
<b>Update Rate</b>	1ms	100ms	100ms	1ms
<b>Fast Frequency Response with Low Pass Filter</b>	Yes (M664 / M665)	No	No	Yes (MTWDN8C)

# Argus Fleet Management

## Powering reliability

Argus is a convenient, enterprise-level solution designed to monitor the performance and health of NovaTech Orion, Kronos and Hermes devices. Argus provides real-time insights tailored to your OT devices and enabling seamless and improved visibility of your energy infrastructure. Whether tracking devices at a single site or across the entire fleet, Argus simplifies operations and reduces downtime with comprehensive monitoring, diagnostic insights and user-centric design.



The screenshot displays the Argus Fleet Management interface. On the left is a dark sidebar with a menu containing: Dashboard, Templates, Metrics, Alarm Management, Models, **Devices**, Agents, Metric Logs, Alarm Logs, System Logs, Users, Roles, Zones, and System Settings. The main content area is titled 'Devices' and includes a 'CREATE' button in the top right. Below the title is a search bar with fields for 'Device Name', 'Model' (with a dropdown arrow), 'Serial', and 'Firmware', followed by a 'RESET' button. A table lists the devices with columns: Status, Device Name, Description, Model, Agent, Template, Device Serial, and Device Firmware. Each row has a 'VIEW' button. The table contains four rows of data. At the bottom right of the table area, it shows 'Items per page: 10' and '1-4 of 4' with navigation arrows.

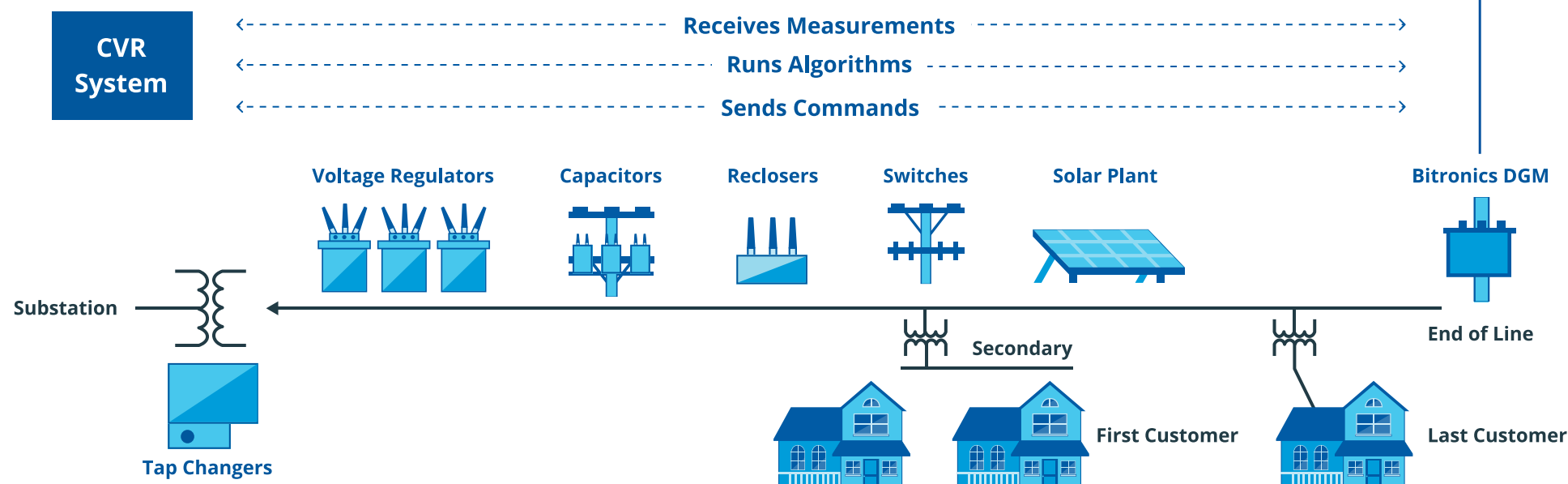
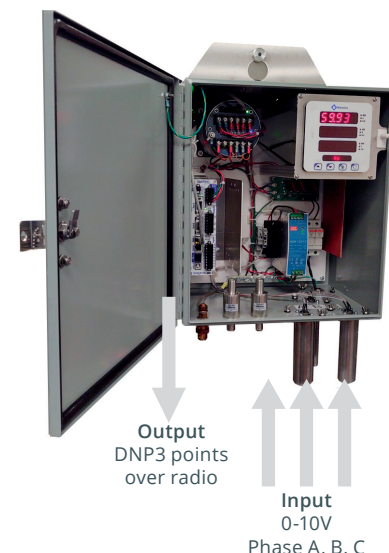
Status	Device Name	Description	Model	Agent	Template	Device Serial	Device Firmware	
Online	Remote OrionMX	Remote Device	OrionMX	Local Agent c20363b5b2a4	Available MX Metrics	21301	10.0.0	<a href="#">VIEW</a>
Online	OrionMX - On Site		OrionMX	Local Agent c20363b5b2a4	Test	21522	10.2.1	<a href="#">VIEW</a>
Online (alarming)	OrionLX+ - On Site		OrionLX+	Local Agent c20363b5b2a4	OrionLX+	85522	10.2.1	<a href="#">VIEW</a>
Online	Kronos - On Site		Kronos 2P	Local Agent c20363b5b2a4	Kronos2	20841	0307.0-158.2	<a href="#">VIEW</a>

Items per page: 10 1-4 of 4

# Distribution Grid Monitoring

## Voltage Optimization

The NovaTech Digital Grid Monitor (DGM) is a configurable solution designed for pole top installation, ideal for providing distribution line data, including accurate voltages, loads, reactive power, and fault data. The DGM gives more granularity to ADMS, FLISR and VVC/VVO and CVR schemes.



## Packaged Solutions

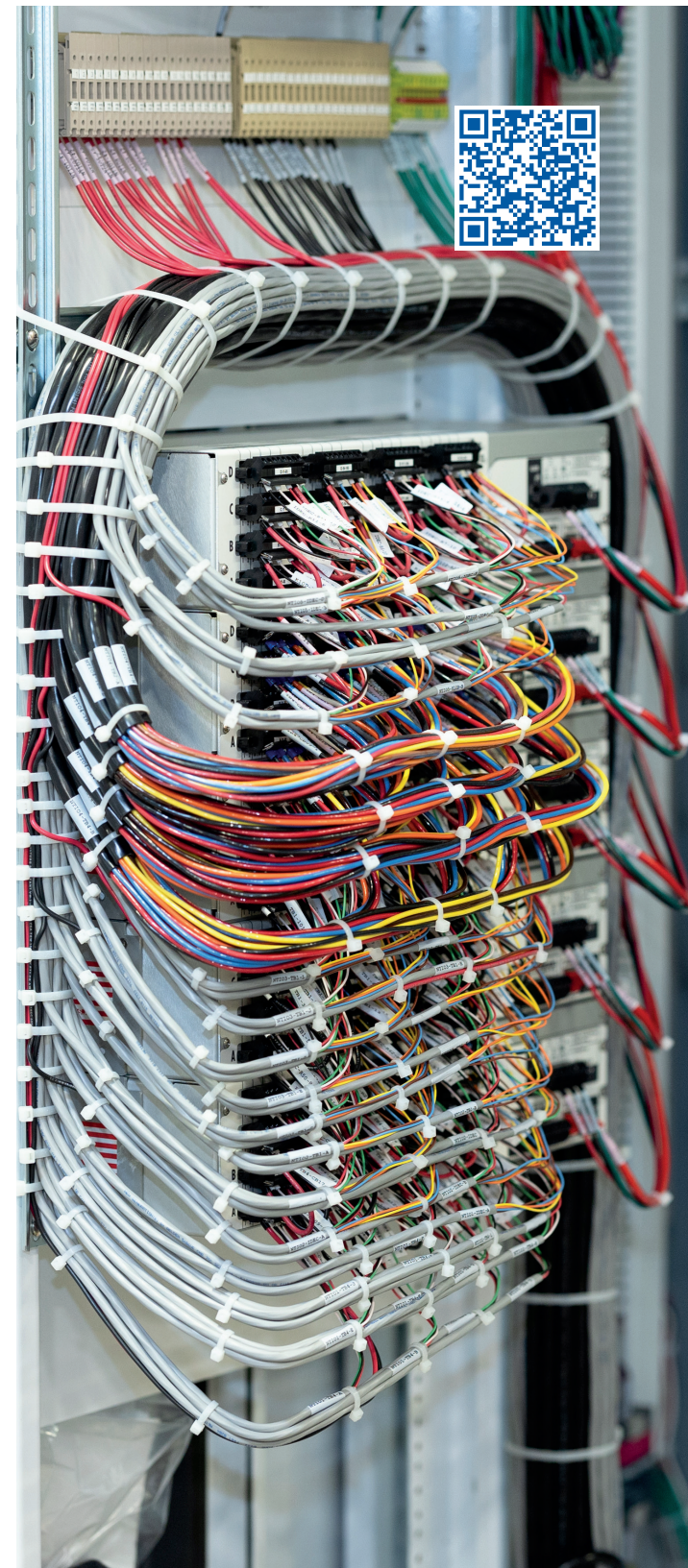
# Design, build, install and retrofit

For more than 30 years, NovaTech has been designing, building, and commissioning custom panels for some of the largest utilities in the world. Our Systems and Services staff includes project engineers, panel assemblers, software engineers, quality engineers and training instructors.

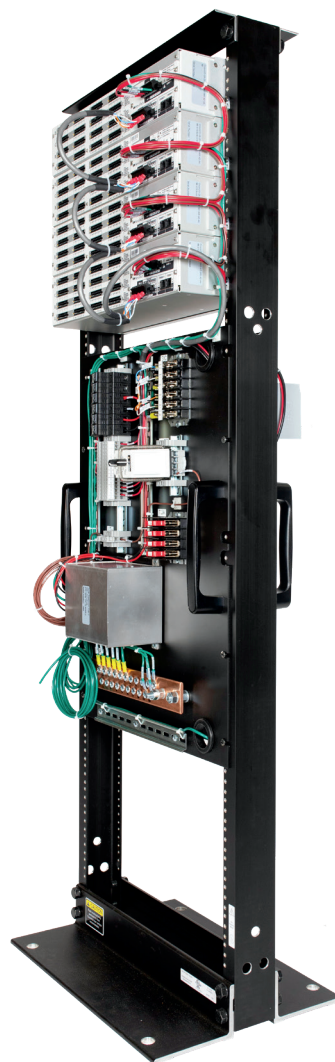
Our 37,000 square foot facility in Lenexa, Kansas features a professionally designed climate-controlled manufacturing area, state-of-the-art testing laboratories, and fully equipped engineering areas.



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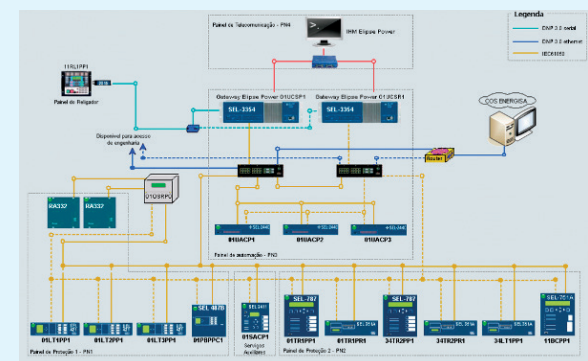
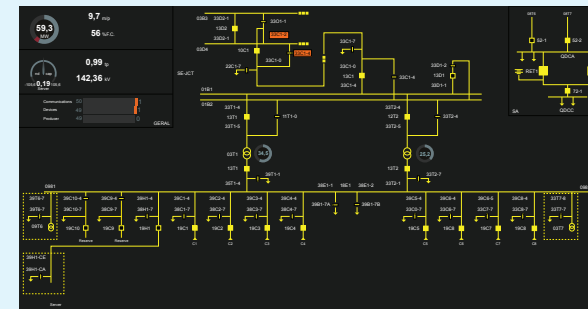


# SCADA Systems

## Design and deploy with no annual fee



We provide scalable SCADA solutions tailored for electric utilities, ranging from intuitive web-based interfaces to comprehensive Energy Management Systems (EMS) and Advanced Distribution Management Systems (ADMS). Our offerings enhance operational efficiency across generation, transmission, and distribution networks.





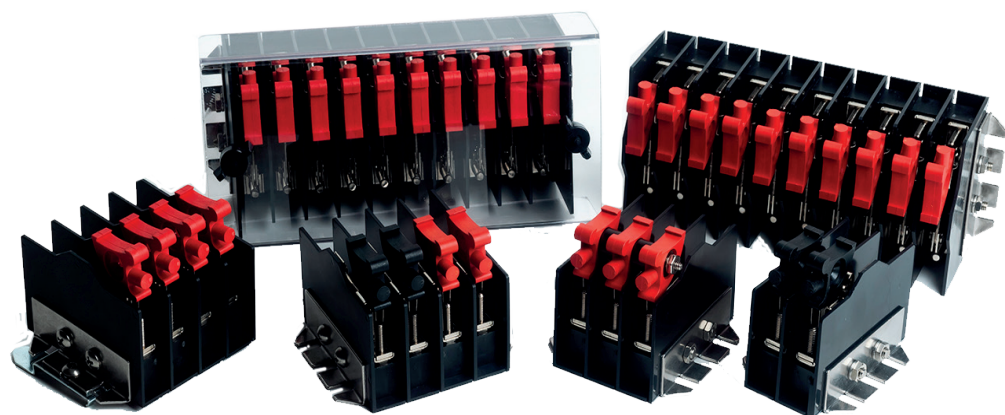
# W3TS Modular Test Switches

## Reliable & configurable

W3TS test switches feature integrated barriers, high quality materials, and our patented safety knob - perfect for modern substations across the grid. Choose from 15 switch elements and a variety of handle colors to create a custom configuration using our web-based design tool. The modular design allows W3TS to be used where only a few points may be needed.



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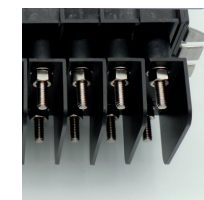
### Mounting and Installation Options



Surface Mount

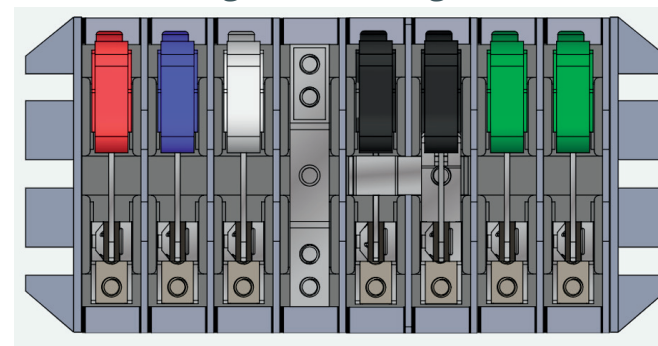


DIN Rail



Back Connected

### Custom Configuration Designer



Web-based design tool allows you to create unique configurations not available from other manufacturers. Experiment with layouts, generate a part number, and submit a quote request all in one easy-to-use interface.

## Connect with NovaTech Automation

# Offices & authorized partners



Contact us today at 844-NOVATECH | [sales@novatechautomation.com](mailto:sales@novatechautomation.com)

### **Bethlehem, PA**

261 Brodhead Road, Bethlehem, PA 18017

### **Lenexa, KS**

13555 West 107th Street, Lenexa, KS 66215

### **Lima, Peru**

Calle Alcanfores 142 - 606, Miraflores 15074



**International Distributors**



# Contacts & Support



## **Book 30 minutes with an engineer**

Our engineers are available to help. Book a 30 minute session with one of them to talk through your projects in detail.



## **POWER HOUR**

### **Power Hour webinars**

Our monthly webinars include training on our products and a variety of grid automation topics like logic protocols, SCADA, Networking, etc.



## **World-class support**

Knowledgeable technical support personnel and comprehensive online resources help us deliver 98.7% CSAT.



## **Training**

Orion automation basic training in our Lenexa, Kansas facility or customizable curriculum to upskill your staff at your facility.

# Committed to our customers and the future



NovaTech Automation is a US-based, family-owned business.

As current and future stewards of the most complex machine ever built, we have both the opportunity and obligation to accelerate the decarbonization of the power grid. We have therefore committed to achieve Net Zero carbon/GHG operations by 2050.

Conrad Oakey, CEO  
Volker Oakey, Chairman



# Electrify and automate everything



NovaTech Automation is net zero committed. Printed on recycled paper. ♻️

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