

## DistribuTECH 2017 Edition

January 31 - February 2  
San Diego, California  
Booth #1523

See the latest in Substation Automation, Substation I/O, Panel Metering, PRC-002 Disturbance Monitoring, and Systems Engineering in NovaTech Booth #1523.

At DistribuTECH 2017, NovaTech is launching the new Orion I/O™, offering the lowest cost per point in 2 RU, advanced diagnostics, and Cyber Security to substation I/O applications. Come by to see a demonstration!

Key features include:

- Advanced User Interface provides point status and diagnostics at the touch of a button. See Figures 1 and 2 for details.
- Security suite from the OrionLX™ including firewall, user groups, strong passwords, secure protocols and syslog
- High density: Up to 64 discrete I/O or 32 analog inputs in 2 RU
- Three available I/O cards:
  - » 1 ms SOE card with 16 inputs
  - » Output card with 16 NO or NC outputs
  - » Analog Input card with eight inputs
- Modularity and Flexibility: Orion I/O ordered with any I/O Card in any of the four card slots.
- Serial and Ethernet communication ports offered in standard copper and optional fiber. DNP3, Modbus, IEC 61850 and IEC 60870 all supported. See Figures 3 and 4 for layout of ports.

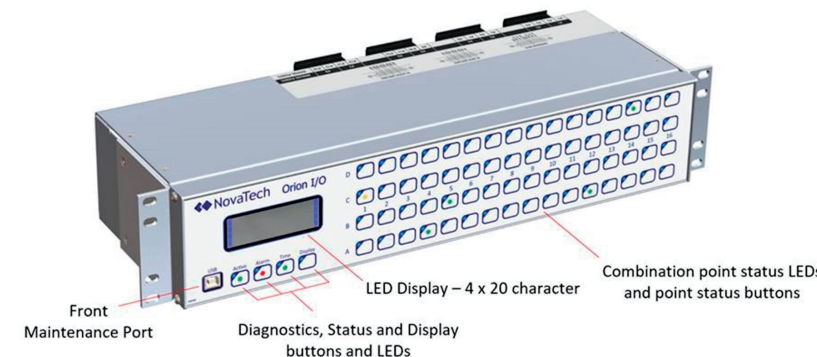


Figure 1: Advanced User Interface

SULLIVAN SUBSTATION MODULE 27	User-defined message
CARD D: 8 AI CARD C: 16 DO CARD B: 16 DI CARD A: 16 DI	I/O cards in slots A, B, C, and D
Sullivan_Sub_IO17.nc d SERIAL #00231 FIRMWARE 9.1	Active NCD file, serial number, and firmware
BRKR_237@ORION_IO 10-27 13:09:23.412 OPEN	User-defined message
MaxErr -2147483648 EstErr -2147483648 Quality 16 Reachability 242	Time diagnostics

Figure 2: Available status and diagnostic displays on the Advanced User Interface



Figure 3: Rear connections on Orion I/O. Four I/O cards shown populated in slots A, B, C, and D.

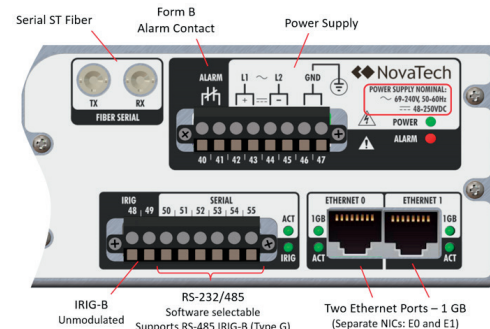


Figure 4: Rear ports for power, IRIG-B, serial and Ethernet communication

## Upcoming Training & Events

### Upcoming Scheduled Courses: OrionLX/OrionLXm Automation Platform

March 7 - 8, 2017      Lenexa, KS      K700

For complete course descriptions, please visit our website [www.novatechweb.com](http://www.novatechweb.com) and search for substation automation training.

### Upcoming Events:

#### DISTRIBUTECH<sup>®</sup> CONFERENCE & EXHIBITION

January 31 - February 2, 2017  
San Diego, California  
Booth #1523

### Spring E&O Conference

March 7 - 9, 2017  
Warwick, Rhode Island

## Latest Software

**OrionLX Release: 8.8**

**Bitronics 50 Series Firmware: 3.13**

**Orion NCD3 Version: 3.30**

**Bitronics 60 Series Firmware: 2.21**

**Bitronics M87x firmware: 4.11**

**Bitronics PowerPlex II Firmware: 2.21**

**Bitronics 70 Series Configurator: 4.11**

**BiView: 3.05**



DistribuTECH 2017 (continued)

All NovaTech products will be powered up and displayed online in four NovaTech-designed cabinets.

Four server-based demo stations with monitors enable all products to be simultaneously demonstrated. The NovaTech SCADA Reporting package will be running on one of the servers, archiving data from OrionLXs and serving out preformatted SCADA reports.

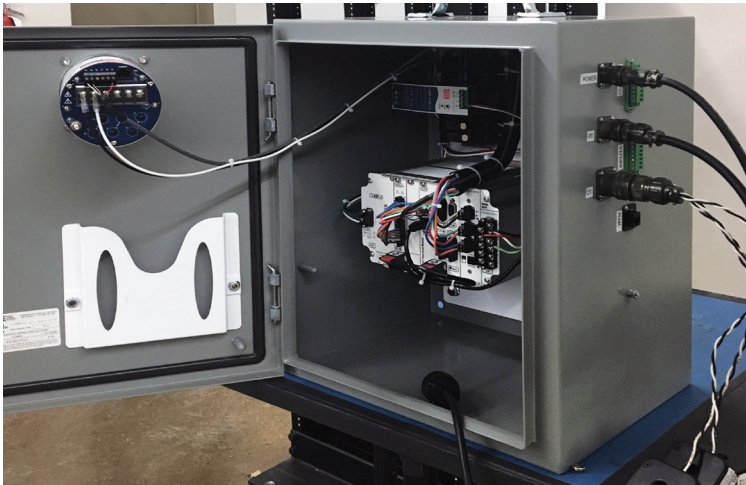
**1. Complete HMI RTU Cabinet** with OrionLX CPX with Direct Video MMB driving a Transduction HMI. This fully-interactive RTU cabinet includes one-line diagram, IED zoom screens, the new Pre-Drawn Image Library and the Orion Alarm Tile Annunciator. The cabinet also contains our new Orion I/O, plus our current Distributed Discrete I/O and Distributed Combination I/O.



**Relay Cabinet** with different protective relays—Cooper Form 6, SEL-351, Beckwith M7651 Feeder relay—all polled by an OrionLX. Also powered and on display: Bitronics® M660 Panel Meter with 61850 and the new Bitronics PowerPlex II with built in I/O. A special application demo includes the SEL-3610 port expander in a “passthrough” application between the OrionLX and an SEL® relay.



**3. “Portable” Fault Recorder Assembly** featuring the Bitronics 871 with the accurate split core CTs. This is the design recently installed in over 100 applications in an eastern utility to “upgrade” E/M line relays. This pre-packaged and pre-configured Bitronics 871 can be installed and reporting in less than one hour, and measures fault magnitudes, calculates fault distance and records fault oscillography. Using this online assembly, our engineers can review and demonstrate the 871 features to meet the latest requirements for PRC-002 Disturbance Monitoring Equipment.



**4. Wall-mount RTU** to showcase NovaTech’s ability to also produce smaller RTUs. This complete customer design includes the smaller universal-mount OrionLXm™ with I/O, along with a Phoenix battery backup system.



Check Us Out

In the upcoming January/February issue of “Electric Energy T&D” magazine.

Please Push Our Buttons



Introducing the most advanced and intuitive substation I/O yet.

The new NovaTech Orion I/O™ packs security, up to 64 configurable points, and a sleek Bitronics® touchpanel interface all into a compact 2U format.

Check it out at DistribuTECH Booth #1523 or visit us online at [www.novatechweb.com/orion\\_io](http://www.novatechweb.com/orion_io)



[novatechweb.com](http://novatechweb.com)

Updated Literature: Solution for PRC-002

A new version of the PRC-002 standard is now going into effect. Our latest document, “PRC-002-2 Compliance Using Bitronics 70 Series Recorders,” details features for compliance and application.

PRC-002-2 Compliance Using Bitronics® 70 Series Recorders

**Introduction**  
The North American Electric Reliability Council (NERC) has defined standards for disturbance monitoring and reporting requirements for transmission and generation systems. The primary standard is the recently approved PRC-002-2 which replaced PRC-002-1 and PRC-018-1. PRC-002-2 establishes requirements for installation of Disturbance Monitoring Equipment (DME) for the purpose of obtaining data to facilitate analysis of Bulk Electric System (BES) disturbances.

DME is required at specific places within the generation and transmission infrastructure and must be capable of monitoring and recording system data pertaining to a wide variety of system or equipment disturbances. DME must provide fault recording (FR), dynamic disturbance recording (DDR), and sequence of event recording (SEV). Bitronics 70 Series Monitoring and Recording (M&R) (intelligent electronic devices) are compliant with all three recording requirements for DME for the PRC-002-2 standard.

**NERC PRC-002-2 and the Need for Disturbance Monitoring Equipment (DME)**

**Key Elements of the Standard**  
PRC-002-2 requires that transmission owners identify BES buses for which SEV and FR data is required per a methodology defined in PRC-002-2 Attachment 1 and notify owners of BES connected elements to those buses that they require SEV and FR data. They must maintain this list and re-evaluate all BES buses at least once every five calendar years, notifying affected owners of the outcome of the evaluations. Each Responsible Entity must identify BES elements for which DDR data is required as defined in BS of the standard. They must maintain this list and re-evaluate all BES elements at least once every five calendar years, notifying affected owners of the outcome of the evaluations.

The requirements and the M&R compliance with those requirements for all three recording modes are summarized on the following tables:

PRC-002-2 Requirement for SEV			
Requirement	Reference	Compliance	Notes
Each transmission and generator owner shall have SEV data for circuit breaker position (operating) for each circuit breaker affected under the standard (identified under #1).	81, 82	✓	Up to 16 without Ethernet and 48 with Ethernet digital inputs per the vsm1001.

◆ NovaTech

For this document, and all NovaTech literature, please visit [www.novatechweb.com](http://www.novatechweb.com)