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Technical Papers Covering IEC 61850

Bruce Muschlitz, NovaTech Staff Research Engineer, has recently presented two papers, and will be presenting a third, covering various aspects of IEC 61850. The first was given at the Georgia Tech Fault and Disturbance Analysis Conference on April 27th titled "Multi-vendor Distributed Recorders Using Standardized IEC 61850 GOOSE Communication." A second paper "IEC 61850 Interoperability: The Good... the Bad... and the Ugly" was presented at the PAC World Conference 2015 in Glasgow, UK on June 30th. A third paper to be presented at the PAC World Americas Conference in Raleigh, NC in September, is titled "IEC 61850: What Are You Waiting For?"

Bitronics[®] has several products that support IEC 61850. The Bitronics 70 Series are used in distributed recording arrangements with several customers. The Bitronics 60 Series SCADA meters support IEC 61850, and the OrionLX and OrionLXm also support IEC 61850.

These three papers explore IEC 61850 from three different angles. The first paper highlights an existing 61850 application that delivers real savings in wiring and engineering. The second paper is a frank analysis of the challenges of implementing 61850, notably on your first attempt. The third paper is a call to action with a summary of advantages and a guide for making your first installation a success.

NovaTech offers recording, metering, and substation automation products with 61850. The Bitronics 70 Series DFRs use 61850 cross-triggering in distributed recording. The Bitronics 60 Series brings 61850-based panel metering to automation systems. The OrionLX and OrionLXm substation automation platforms access data from IEC 61850 IEDs and forward this data to SCADA and engineering clients using legacy protocols.

The two most recent presentations can be found on the NovaTech website at: http://www.novatechweb.com/ documentation/members/presentations/

Please note, the third presentation will be added once it is presented in September at **PAC World Americas Conference.**

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LATEST SOFTWARE

OrionLX Release: 8.7 Orion NCD3 Version: 3.28 Bitronics M87x firmware: v4.09 Bitronics 70 Series Configurator: v4.09 Bitronics M57x firmware: v4.09 Bitronics 50 Series Firmware: v3.09 Bitronics 60 Series Firmware: v2.02 Bitronics PowerPlex II Firmware: v2.06 **BiView:** v3.05

UPCOMING TRAINING

OrionLX / OrionLXm Automation Platform September 22 - 23, 2015 December 8 - 9, 2015

To register for these upcoming classes, please visit our website.

UPCOMING EVENTS

The Anfield Group's 4th Annual Technologies for Security and Compliance Summit August 5 - 6, 2015 Barton Creek resort in Austin TX

PAC World Americas Conference September 1 - 3, 2015 Raleigh, North Carolina

Energy Association of Pennsylvania September 15, 2015 Lancaster, Pennsylvania

ECNE's Fall Engineering & Operations Conference November 4 - 6, 2015 Leominster, Massachusetts

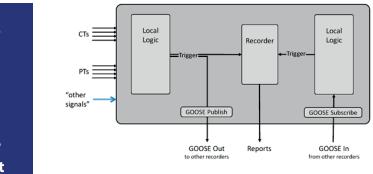
NovaTech LLC Volume 11



Bruce Muschlitz presented at PAC World Americas Conference in Raleigh, NC on the status of development and the finer points of the IEC 61850 standard.



Bruce Muschlitz sitting on the "Ask the Experts" panel at the 2015 PAC World Conference in Glasgow, UK.



A slide from the "Multi-vendor Distributed Recorders" presentation illustrates the advantages of GOOSE messaging in distributed recording.

Did You Know?

1. Create a spreadsheet of Alias names offline. Use a single column

with the specific headers [Input Alias] and [Output Alias] as shown

A spreadsheet of Alias names can be loaded into NCD, so Alias names do not have to be typed in.

The standard Alias feature in the OrionLX enables any OrionLX database point to be given an alternate name. The assigned name remains available, so the user can view either the assigned name or Alias name when setting up Orion applications. To reduce the time to set up Alias names, a spreadsheet of Alias names can be loaded into Orion and names can be simply dragged over. The following screen captures describe the steps:

below to make the file usable by NCD. B C D E F G H I J К М L [Input Alias] X Save As 120Vac Power Supply Status 3 125Vdc Power Supply Status 00-My Documents + NCD + Alias Names ✓ ✓ Search Alias Names Power Sharing Circuit Status 0 Orion Internal Temperature (celcius) Organize 🔻 New folde - 1 6 Firewall at Default: not configured Desktop **Documents** library 7 User logged in using telnet Arrange by: Folder Downloads 8 User logged in using SSH Alias Names Dropbox 9 User logged in using HTTP laces Recent Places 10 User logged in using HTTPS 11 User using keyboard and mouse Name and save the spreadsheet as a .csv file 12 User Passthrough to SEL Relay Libraries 13 User logged in at root locally Document 14 User logged in at root remotely A Music 15 Orion in Alarm S Pictures 16 User action with IEC 61131-3 File name: 17 Unknown user Login Error 18 Known user lockout Save as type: CSV (Comma delimited) (*.csv) 19 Eth0 Link ion Director - [Alias Interface Aliasing - (1_General_Demo Authors: Ray Wright 20 Eth0 Activity File Edit Configure Communications Window He 21 Eth1 Link Open up "Alias" under 😂 🖉 🧟 🛠 🖻 🔞 3. 22 Eth1 Activity elete Port Close Port "Add Ons" and view Hide Folders Inputs Outputs 23 Eth2 Link Inputs points to be given an 120Vac Power Supply Status 125Vdc Power Supply Status Power Sharing Circuit Status 24 Eth2 Activity Port 21 - Sensor Master - 🗙 🗌 Alias. In this example, n Status @Orion Interna vall Status @Orion Inter 6 Output Alias the "Sensor" points are to be assigned an Alias. th IEC 61131-3 Unknown user Eth0 Link Eth0 Activity Eth1 Link Eth1 Activity Eth2 Link Eth2 Activity ssion Status @Orion Internal in Telnet Session Status @Orion Interna n 3A Volts @Orion Internal rion 3B Volts @Orion Interna rion 5 Volts @Orion Internal vailable Alias Names (Drag/Drop to grid): Inputs Port 21 - Sensor Maste - 🗙 🗌 Vdc Power Supply Status ver Sharing Circuit Status Point Name irewall at Default: not configured Alarm Status @Orion Internal Firewall Status @Orion Internal GDM Session Status @Orion Internal HTTP Session Status @Orion Interna Orion in Alarm Firewall at Default: not configured Load .csv file. Alias r logged in using telnet r logged in using SSH r logged in using HTTP User using keyboard and mous User logged in using HTTP 5. **Drag Alias** names will appear in the right column as names over cosmough to SEL Rela logged in at root locally logged in at root remotely in Alerm IEC61131-3 Session Status @Orion Internal User action with IEC 61131-3 shown here. Known User Login Failure Count @Orion Ir Local Root Session Status @Orion Inte Jser logged in at root locally n with IEC 61131-3 Local Session Status @Orion Internal Login TTY Session Status @Orion Internal Done. Login Telnet Session Status @Orion Interna Orion 3A Volts @Orion Internal er logged in using telnet 0Vac Power Supply Status 5Vdc Power Supply Status 11 Link on 3B Volts @Orion Interr Orion 5 Volts @Orion Internal ower Sharing Circuit Status Orion Temperature @Orion Internal PPP Session Status @Orion Internal on Internal Temperature (cel Load File... ro FTPD Session Status @Orion temote Root Session Status @Orion Internal User logged in at root remotely Root Session Status @Orion Internal SSHD Session Status @Orion Internal Secure Passthru Session Status @Orion User logged in using SSH User Passthrough to SEL Rela Inknown User Login Failure Count @Orion Internal Unknown user Login Error User Lockout Count @Orion Internal User Login Count @Orion Internal eth0 activity @Orion Internal Known user lockout) Activity eth0 link @Orion Internal eth1 activity @Orion Interna eth1 link @Orion Internal th1 Activity Link eth2 activity @Orion Interna th2 Activity h2 Link ttyS2 off hook @Orion Internal S20 off hook @Orion Interna

Bitronics P33 Output Only Module

To meet the demand for separate dedicated input and output devices, Bitronics has developed the P33 Digital Output Module that provides eight relay outputs and will allow up to 48 outputs per each 878 High Density I/O device. Previously the maximum number of outputs was four in either the P30A or P31 modules. The eight relay outputs are high performance, having the same characteristics as those in the P30A and P31 modules mainly:

• Digital outputs have protection and control industry standard-type output relays and circuitry to ensure system reliability.



Check Out the New I/O Selection Tool on NovaTech Website

2) "Select" at bottom of page	lect		
3) Enter your application-specific infor	mation		
Provide us with the basic information below and we'll reply wi	th the appropriate models and options.		
How many digital inputs do you need?			
32			
What is the nominal input voltage you need?			
48V dc	4) Enter requestor informati	on	
How many digital outputs do you need?	-, Enter requestor mornat	011	
16	Name*		
How many transducer/analog inputs do you need?	Email*		
8			
What range do you need for your transducer/analog inputs?			
0-1 mA	Phone*		
What should the power supply voltage be?			
48V dc	Location*		
Which Physical Comm do you need?		United	
Ethernet ST Fiber	State / Province / Region	Country	
Which mounting do you need?	Company*		
19" Rack Mount	(anipoly)		
Communication Protocol			
DNP3 TCP	Role*		
I'm interested in (check any that apply)			
Pre-Wired Mounting Options	Comments		
Cabinetry			
Installation & Commissioning			
	E) Culture it	5) 0 L	
	5) Submit		
		SUBMIT	
		BODIMI	

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- Outputs are rated for 2000Vac, 1min isolation, I/O to I/O, and I/O to case.
 - The outputs are jumper-selectable for "normal" output state (Normally Open or Normally Closed) and for relay condition (energized or de-energized).
 - The digital outputs are controlled via CONTROL RELAY OUTPUT BLOCK objects and support LATCH-ON, LATCH-OFF, PULSE-ON, PULSE-OFF, and TRIP/CLOSE commands.
 - The Output Maximum Switched Current (Resistive):

Voltage	Tripping (C37.90 Resistive)	Continuous Carry	Break (Inductive)
24Vdc	30A	5A	8A
48Vdc	30A	5A	700mA
125Vdc	30A	5A	200mA
250Vdc	30A	5A	100mA

- The Output Operate Time (time from command by Host, does not include protocol delays):
 - Assert (Close time with "N.O." jumper): 8ms
 - Release (Open time with "N.O." jumper): 3ms

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States		٠
		-4

NovaTech now offers four substation I/O solutions: Bitronics 878, DDIO, DCIO and built in OrionLXm I/O (12in/4out).

An I/O selection tool is available on our website to help us work with you to determine which I/O solution is best for your application. Follow the steps on the left.

