OrionLX+ Automation Platform

The OrionLX+ is the latest offering in the Orion family of substation automation platforms. The OrionLX+ adds new power and flexibility for larger, more challenging applications, plus adds features to simplify usage and reduce costs of ownership.

As a member of the Orion family, the OrionLX+ shares the same operating system and configuration techniques of the other Orions: OrionLX CPX, OrionLXm and Orion I/O. Configurations from other Orions can run in the OrionLX+, and the same serial communication cards can be shared between the OrionLX CPX and OrionLX+.

New capabilities include hot swappable power supplies, expanded networking options, higher "Direct Video" performance, expanded application support and significantly more power. Each is described below :

Hot Swappable Power Supplies
Single or redundant supplies can be ordered, each removable under power from the front of the OrionLX+. For higher reliability, both power supplies share the load, and are health monitored by internal Orion diagnostics.

Expanded Networking Options
A new "NovaCard" Expansion Card adds three more Ethernet ports (separate NICs) to the standard two copper Ethernet ports on the OrionLX+, for a total of five Ethernet ports. Two of these three ports are of the "SFP" (Small Form-Factor Pluggable) design. NovaTech offers multimode, single mode and copper SFP transceivers to populate these two SFP receptacles.

Higher Direct Video Performance
A new "Display Port" video port with enhanced video support speeds up page load and supports both resistive and capacitive touch monitors for improved touch-screen performance.

Expanded Application Support
The power and flexibility enable the OrionLX+ to be applied in a broad range of applications, including:

- Substation RTU
- Security Gateway
- Terminal Server
- Math and Logic Controller
- Protocol and Media Converter
- Relay Communications processor
- FLISR Controller
- SCADA Master
- Substation HMI
- Tile Alarm Annunciator
- Sequence-of-Events Recorder
- Data Archival Appliance

More Power
Six times more processing power translates into the ability to handle more points (up to 40,000), store more points and operate with much lower CPU loadings in larger applications.

Front View of OrionLX+

Other Hardware Features
- Keyboard and mouse ports
- Modular, field-replaceable serial port cards

Communications

Serial Cards
A: RS-232 Standard w/ IRIG-B
B: RS-422/485
C: ST-Fiber Optic
D: Bit Card (Bit-to-byte conversion)
E: RS-232 Isolated w/ IRIG-B
G: RS-485 w/IRIG-B
H: V-Pin Fiber Optic w/ IRIG-B

Ethernet
(2) 100/1000BaseT (std.)

On optional NovaCard:
(1) 100/1000BaseT
(2) SFP receptacles with available transceivers:
Multimode: LC conn., 550m, 850nm, 1Gb/s
Single Mode: LC conn., 10km, 1310nm, 1Gb/s

IRIG-B
Standard Built-In

SCADA Protocols

Betac/Getac
Conitel - 300/20x0
CDC - Type I and II
DNP3 – Serial and IP
Harris 5000
IEC 60870 Serial and TCP
L&G 8979
Modbus – Serial and TCP
REDAC 70H
SES-92
SPS
TejasV

IED Protocols

ABB DPU
Allen Bradley DF1
Areva KITZ
Areva Optimho
Basler DFPR
DNP3 Serial and IP
GE DLP
GE Moisture Meter
GridSense PAC
IEC 870-5-103
IEC 61850
Keithley Meter
Modbus Serial and TCP
PG&E 2179
RFL
SEL® ASCII
SEL® Fast Meter
SEL® Fast Operate
SEL® Fast SER
SPA Bus
TransData DTO
Plus Master versions of SCADA protocols: CDC, Conitel, Harris, IEC 60870, L&G 8979 and Tejas

Other Protocols

FTP and sFTP
HTTP
HTTPS
NTP
PPP
SNMP
SNTP
telnet
XML
Plus suite of other Security protocols

NovaTech®

	OrionLX+	OrionLX CPX
CPU	Intel® Atom® Quad Core 1.9GHz	Intel® Atom® 1.33GHz
Memory	8GB standard	4GB standard
Max Ethernet Ports	Two standard, +three more with NovaCard (five total NICs)	One standard, +one optional, +one more with MMB (three total NICs)
Fiber Options	Two SFPs for fiber adaptors: MM, SM or copper	One port can be MM fiber
PRP/HSR	Yes, in Phase 2 NovaCard. Uses NIC #3.	PRP only. Uses NIC #1 and #2.
Video Port	One "Display Port"	One VGA Port
Power Supply	Single or redundant, hot-swappable	Single or redundant
Maximum Points	40,000	20,000

OrionLX+ vs OrionLX CPX Comparison Table

Specifications

Environmental
Operating Temperature	-40°C to +70°C
Storage Temperature	-40°C to +85°C
Operating Humidity	5 to 95% non-condensing

Physical
Standard case (2U)	19W x 3.5H x 13D (in)
Weight	9.5 lbs

Connections
RS-232 w/IRIG-B	DB9 (Female)
RS-422/485	Screw Terminal
RS-485 w/IRIG-B	Screw Terminal
Fiber Optic (serial)	ST Multimode
Fiber Optic w/IRIG-B	V-Pin Multimode
Bit Card	RJ11
Ethernet	RJ45 or SFP Receptacle
IRIG-B	Coax
I/O Terminals	Phoenix type, #12-24AWG
Power Terminal	Phoenix type, #10-30AWG
	#10 stud

IRIG-B
Input	Modulated or Unmodulated
Output (on serial ports)	Unmodulated

Indication LEDs
Power Supply #1
Power Supply #2
Inputs on NovaCard (rear)
Outputs on NovaCard (rear)
RX/TX on 16 serial ports
Ethernet Link and Activity
IRIG B Present and Quality
Redundancy Status
Security (Firewall)
Active Configuration
Alarm

Processor
Intel® Atom® Quad Core	1.9GHz per core

Performance/Capabilities
IED/SCADA Points	40,000; typical
Refresh Rate	< 2 sec; typical

Communications
Serial	1200bps-115kbps
Ethernet	
Copper	100/1000BaseT
SFP	Supports transceivers to 1Gb
Protocols	Bit or byte
Upgrades	Via file transfer

Data Archiving & Storage
Memory	8GB SSD, plus 2GB DRAM
Database	PostgreSQL

Digital Inputs on NovaCard
Quantity	4 Std. Independent, Isolated
Input Range	12-24V dc / 48-125V dc
	Optically Isolated
	1ms time-stamped

Digital Outputs on NovaCard
Quantity	4 Std. (2) Form A, (2) Form C
Contact Ratings	10A MOV Protected

Alarm Output
Type	Form C
Contact Ratings	10A MOV Protected

Power Supplies
Input Voltage	*HV Supply*:
	125/250V dc nominal and
	120/240V ac nominal +/- 20%
	LV Supply (Phase 2):
	24/48V dc nominal +/- 20%

Power Required
	HV Supply:
	DC: Typical 30W, max: 50W
	AC: Typical 60W, max: 75W
	LV Supply (Phase 2):
	DC: Typical 30W, max: 50W

Warranty
10 Year Limited

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