

 **Orion Comparison Chart**

Four Orion models are now available to address a range of substation automation and feeder automation applications. Each of these models uses the same software utility - NovaTech Communications Director (NCD) - for all Orion point and logic configuration, including: IED point selection, SCADA point presentation, Alarm Annunciation and SOE Archive set-up, and DA Logic configuration. The following chart summarizes features for each model:



Feature	Orion5	Orion5r	Orion5rL Upgrade	OrionLX
<b>Dimensions</b>	6.4"W x 5.5H x 5.5D (std) 6.4"W x 5.5H x 6.7D (ext)	19"W x 3.5H x 13D	19"W x 3.5H x 13D	19"W x 3.5H x 13D
<b>Front Port</b>	RS-232 (without security)	RS-232 (without security)	RS-232 (with security)	RS-232 (with security) USB Port (with security)
<b>Ethernet Port</b>	<ul style="list-style-type: none"> <li>• None standard</li> <li>• One optional (10BaseT)</li> </ul>	<ul style="list-style-type: none"> <li>• None standard</li> <li>• One optional (10BaseT)</li> <li>• Two optional (10/100BaseT)</li> </ul>	Upgraded Orion5r must have at least one Ethernet port	<ul style="list-style-type: none"> <li>• One Standard (10/100BaseT)</li> <li>• Second optional (10/100BaseT or 100BaseFX)</li> </ul>
<b>Configurable Serial Ports for IED and SCADA Applications</b>	One RS-232 std, up to two serial comm cards: <ul style="list-style-type: none"> <li>• (4) RS-232</li> <li>• (3) RS-232 + (1) RS-485</li> <li>• (2) RS-232 + (2) RS-485</li> <li>• (2) or (4) fiber ports</li> </ul>	One RS-232 std, up to 16 optional in RS-232, RS-485 or fiber (several models of each)	One RS-232 std, up to 16 optional in RS-232, RS-485 or fiber (several models of each)	One RS-232 std, up to 16 optional in RS-232, RS-485 or fiber (several models of each)
<b>IRIG-B Port</b>	NA	Optional	Included as part of upgrade	Standard
<b>V.34 Dial-in Modem</b>	Optional	Optional	Optional	Optional
<b>Power Supplies</b>	<ul style="list-style-type: none"> <li>• 12V dc</li> <li>• 24V dc</li> <li>• 48V dc</li> <li>• 120V ac / 125V dc</li> </ul>	<ul style="list-style-type: none"> <li>• 12V dc</li> <li>• 24V dc</li> <li>• 48V dc</li> <li>• 120V ac / 125V dc</li> </ul>	<ul style="list-style-type: none"> <li>• 12V dc</li> <li>• 24V dc</li> <li>• 48V dc</li> <li>• 120V ac / 125V dc</li> </ul>	<ul style="list-style-type: none"> <li>• 12V dc</li> <li>• 24V dc</li> <li>• 48V - 125V dc/120V ac</li> <li>• 120V - 240V ac</li> </ul>
<b>Redundant Power Supplies</b>	NA	NA	NA	Optional
<b>Standard/Optional Expanded Memory</b>	24MB	24MB	64MB/ 256MB, 1GB, 4GB	64MB/ 256MB, 1GB, 4GB
<b>Discrete I/O</b>	4-in / 2-out (80 - 100mS SER)	4-in / 4-out (80 - 100mS SER)	4-in / 4-out (40 - 60mS SER)	4-in / 4-out (1mS SER)
<b>Diagnostics</b>	Serial Port TX/RX status, Power, Alarm	Serial Port TX/RX status, Power, Alarm	Serial Port TX/RX status, Power, Alarm	Serial Port TX/RX status, Power, Alarm, Modem CD, Ethernet Comms Status, IRIG-B status, I/O status and Firewall configuration status
<b>Security</b>	One username and password in NCD configuration, some system logging, no security on front port	One username and password in NCD configuration, some system logging, no security on front port	Multiple usernames and passwords entered through secure webpage, firewall, encryption, full systems logging, security on front ports	Multiple usernames and passwords entered through secure webpage, firewall, encryption, full systems logging, security on front ports



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Feature	Orion5	Orion5r	Orion5rL Upgrade	OrionLX
<b>Time Management</b>	• SNTP IN, SNTP OUT	• IRIG-B IN, IRIG-B OUT • IRIG-B IN, SNTP OUT • SNTP IN, SNTP OUT	• IRIG-B IN, IRIG-B OUT • IRIG-B IN, NTP OUT • NTP IN, IRIG-B OUT • NTP IN, NTP OUT	• IRIG-B IN, IRIG-B OUT • IRIG-B IN, NTP OUT • NTP IN, IRIG-B OUT • NTP IN, NTP OUT
<b>Archived SOE Data</b>	Optional Archive Module	Optional Archive Module	Optional Alarm-Archive-Retentive Module (old Archive Module NA)	Optional Alarm-Archive-Retentive Module (old Archive Module NA)
<b>Alarm Annunciation</b>	Optional Web Alarms Module	Optional Web Alarms Module	Optional Alarm-Archive-Retentive Module (old Web Alarms Module NA)	Optional Alarm-Archive-Retentive Module (old Web Alarms Module NA)
<b>Retentive</b>	NA	NA	Available with Optional Alarm-Archive-Retentive Module	Available with Optional Alarm-Archive-Retentive Module
<b>Cascaded Orions</b>	NA	NA	Optional, up to 6 Slave Orions attached to Master Orion	Optional, up to 6 Slave Orions attached to Master Orion
<b>Email</b>	NA	NA	Optional	Optional
<b>STCP</b> (SEL® protocol over TCP)	NA	Optional, but limited to 8 SEL® relays on expansion Orion	Optional, up to 50 SEL® relays on expansion Orions	Optional, up to 50 SEL® relays on expansion Orions
<b>Aliasing</b>	NA	NA	Standard, but customer use is optional	Standard, but customer use is optional
<b>Text Function</b>	NA	NA	Standard	Standard
<b>Database</b>	Proprietary	Proprietary	Open, relational PostgreSQL	Open, relational PostgreSQL
<b>Configuration</b>	All in NCD	All in NCD	In NCD, except for username, password and security parameters entered through webpage (or root console access)	In NCD, except for username, password and security parameters entered through webpage (or root console access)
<b>Max Points in SCADA Database</b>	5,000	5,000	20,000	20,000
<b>Number of Ethernet Connections plus "threads" <sup>1</sup></b>	24	24	125	125
<b>Max Stored Archive or Alarm points</b>	500,000	500,000	See note 2 below	See note 2 below

<sup>1</sup> Guideline for sum of Ethernet devices plus configured serial ports with protocols, plus Ethernet protocols plus software options

<sup>2</sup> Theoretical maximums with optional memories:

5.37M with 256MB memory, 20.96M with 1GB memory, 83.86M records with 4GB memory

Note that the amount of data stored should be considered in light of the techniques and connection speeds to be employed to retrieve the data.

### Contact:

NovaTech, LLC  
Orion Utility Automation  
13555 West 107th Street  
Lenexa, KS 66215

T: 913.451.1880  
F: 913.451.2845  
E: [orion@novatechweb.com](mailto:orion@novatechweb.com)  
[www.novatechweb.com](http://www.novatechweb.com)