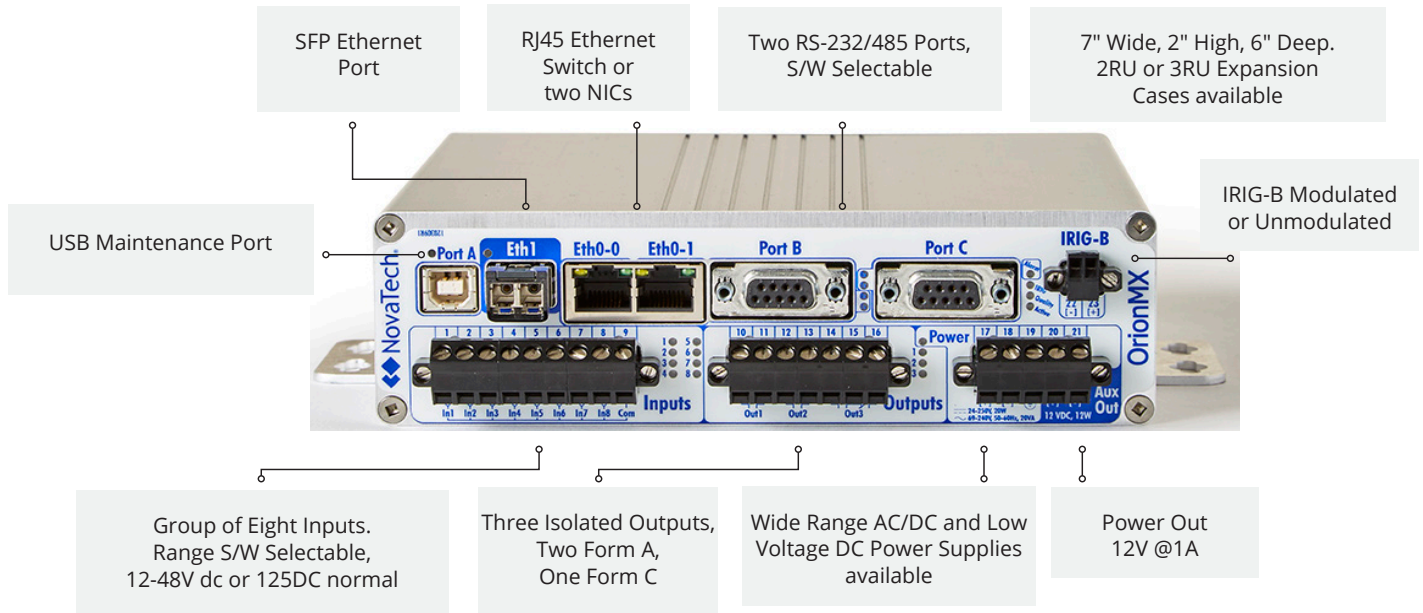


OrionMX Automation Platform

The OrionMX is the smallest member of the Orion family of automation platforms. It is designed for applications in smaller distribution substations, pole top, and vaults. It is also designed for OEM applications, protocol conversion and general infrastructure monitoring.

Key Features

- All connections and diagnostic LEDs on the front face
- Universal mounting: surface or DIN rail
- Hardware options configured in software
- Runs the same firmware, software options and security of other Orions



Software Configurability

Extensive software configurability enables a single physical OrionMX model to handle a wide range of applications. The following are configurable in software:

- The two-port RJ45 Ethernet switch can be configured as two copper NICs.
- Each of the two serial ports can be configured as RS-232 or RS-485. These ports can be further configured to support SEL-relay specific features of IRIG-B from pins #4 and #6, and power from pin #1.
- IRIG-B can be configured modulated or unmodulated.
- The eight discrete inputs can be configured low range (12-48V dc nominal) or high range (125V dc nominal).

Cybersecurity

A full suite of security capabilities is included in the OrionMX design, including:

- Strong passwords and user groups
- Remote Authentication with LDAP to Active Directory
- Integrity Measurement Architecture (IMA) to prevent malware
- Syslog event recording
- Secure protocols: SSH, HTTPS, TLS, SFTP
- Disable unused Ethernet ports

Common Orion Architecture

- The OrionMX is configured with NovaTech Configuration Director (NCD), the same tool used for all Orions.
- The OrionMX runs on the same firmware as the other Orions: OrionLX+, OrionLX CPX, OrionLXm and Orion I/O.
- The OrionMX is available with the same software options as other Orions: Math & Logic, Web-based HMI, Alarming, SOE, Redundancy, Relay Communications Processor, Email, etc.

Flexible Power Capabilities

- Wide range. The standard wide range power supply supports nominal voltages from 24-250V dc and 120-240V ac.
- A power out features (12V @ 1A) enables radio, converters and other accessories in the panel to be powered by the OrionMX.
- A Low Voltage 12-24V dc option will be available in Phase 2 with a power draw of less than 10W for battery-powered applications.

Network Flexibility

- The built-in, two-port switch enables multiple OrionMX's to be daisy-chained.
- The two-port switch can be configured as two NICs.
- The SFP Port (Small Form-Factor Pluggable) can be populated with single mode and multimode SFP transceivers, available from NovaTech.

Dimensions and Mounting Options



Specifications

Environmental

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

Performance/Capabilities

IED/SCADA Points	600 std., 10,000 opt.
DNP3 Connections to IED	128
Refresh Rate	< 2 sec; typical

Processor

CPU	800MHz with cryptographic cypher engines
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Event Storage (non volatile)

500K

Protocols

Server/Slave	IEC 61850, DNP3, Modbus, SEL, IEC 60870-101/104, L&G 8979, SES, SPS, SNMP Agent
Client/Master	IEC 61850, DNP3, Modbus, SPA, IEC 60870-101/104, SNMP Manager, plus other legacy protocols

Time Synchronization

IRIG-B Mod/Unmod, Time Zone, UTC/Local, NTP (Client and Server), send synch to SEL® relays

Physical Connections

IRIG-B	Input: Unmodulated/Modulated Twisted Pair
Ethernet	(2) RJ45 10/100/1000 copper either as switch or two separate NICs (1) SFP with transceivers MM: 550m, 850nm, LC, 1000Mb/s SM: 10km, 1310nm, LC, 1000Mb/s
Maintenance Ports	USB Type B Connector
Discrete Inputs	(8) LV: 12-48dc, HV: 125V dc
Discrete Outputs	(2) Form A, (1) Form C Rated to 125V dc for trip duty
Power Supply	
Input Voltage	#1: 24-250V dc, +/- 15% 120-240V ac, +/- 15% 50-60Hz #2: 12-24V dc, +/- 15% (Ph 2)
Power Output for accessories	12V dc @ 1A
Power Required	10 Watts (typical) 15 Watts (max)

Software Options

Math and Logic

Function Block and Ladder Diagram available in IEC 61131-3. Text-based "LUA" also available. Pre-canned Math & Logic routines available for OR, AND, Local/Remote and simple Calculator.

DA Logic (FLISR)

A pre-engineered automation function is available to identify faulted line section, isolate, and power unfaulted section from second source.

Alarm, Archive and Tile Annunciator

Sequence of Events time stamping to 1ms, plus complete alarm package available. Pre-engineered, web-based, s/w-defined Alarm Tile Annunciator reduces development time.

Custom SVG Webpages

User-defined pages can display real time data or accept user controls.

Email

Alarm messages, diagnostics, or SEL® relay event records can be emailed out to single or grouped users.

Secure Passthrough

Secure access can be established to attached relays, reclosers and other IEDs.

Comm Processor Emulation and Data Logger

The OrionMX can operate like an SEL® relay communication processor to access SEL relays and automatically retrieve event reports.

Cascading Software

Enables multiple Orions to operate as a single automation processor, without any points mapping in-between, and with a single configuration program.

Hot Standby Redundancy

Enables a pair of Orions to serve as a "Primary" and "Secondary". Supports all Orion applications: SCADA, HMI, Alarming, etc. Includes features to simplify set-up, operation and diagnostics.

Configuration Backup

The configurations in Orion and in attached SEL® relays can be automatically accessed and sent out as an email or in a secure file transfer. A secure checksum can be used to identify any configuration changes.