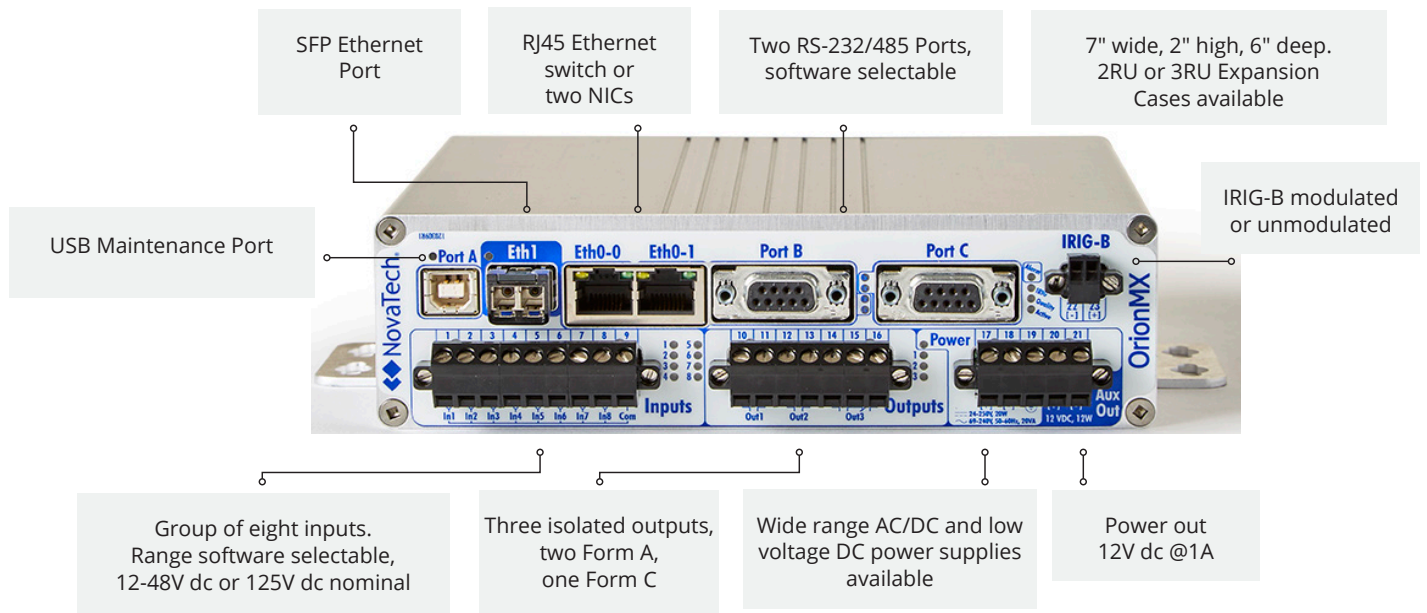


OrionMX Automation Platform

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, 19" rack, or DIN rail
- Hardware options configured in software
- OrionOS supported: the same firmware, software options, configuration, and security as all 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).
- Expansion options available for I/O and serial ports. See reverse for details.

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 OrionOS 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+, OrionSX, 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.

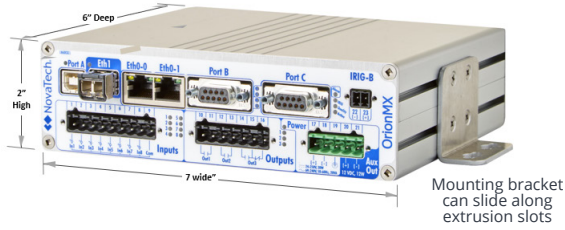
Flexible Power Capabilities

- Wide range. The standard wide range power supply supports nominal voltages from 24-250V dc and 120-240V ac.
- A power out feature (12V @ 1A) enables radio, converters and other accessories in the panel to be powered by the OrionMX.
- A low voltage 12-24V dc option is available 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 Automation.

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 or 20,000 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)

1,000,000

Protocols

Server/Slave	IEC 61850, DNP3, Modbus, SEL, IEC 60870-101/104, L&G 8979, SES, SPS, SNMP Agent
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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
Ethernet	(2) RJ45 10/100/1000 copper either as switch or two separate NICs

Maintenance Ports
Discrete Inputs
Discrete Outputs

(1) SFP with transceivers
MM01 LC Multimode 550m 850nm 1Gbps
SM01 LC Single mode 10km 1310nm 1Gbps
SM04 LC Single mode 40km 1310nm 1Gbps
RJ01 RJ45 Copper 100m N/A 1Gbps

USB Type B Connector
(8) LV: 12-48dc, HV: 125V dc
(2) Form A, (1) Form C
Rated to 125V dc for trip duty

Power Supply

Input Voltage

#1: 24-250V dc, +/- 20%
120-240V ac, +/- 20%
50-60Hz

#2: 12-24V dc, +/- 20%

Power Output
for accessories

12V dc @ 1A

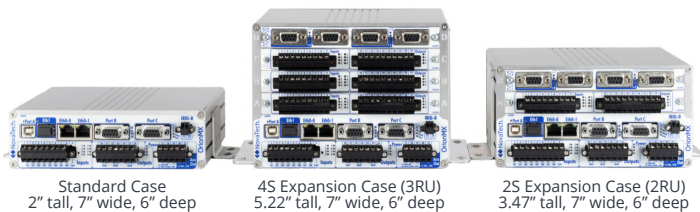
Power Required

10 Watts (typical)
15 Watts (max)

OrionMX Expansion Cases

Two Expansion Cases are now available on the OrionMX. The "2S" case can accommodate two Expansion Cards. The "4S" case can accommodate four Expansion Cards.

As with the Standard Case, Expansion Cases can be universally mounted because all ports, connections, and LEDs are on a single front surface. Mounting options include vertical and horizontal surface mount, DIN rail, and dual 19" rack mount.



Standard Case
2" tall, 7" wide, 6" deep

4S Expansion Case (3RU)
5.22" tall, 7" wide, 6" deep

2S Expansion Case (2RU)
3.47" tall, 7" wide, 6" deep

For more information, please visit the [Quoting Cart](#) on our website.

OrionMX Expansion Cards

The "S1" Serial Expansion Card adds four (4) RS-232/485 serial ports, software selectable. Each port supports SEL® relay interface (pin 1 power and IRIG support) plus pin assignments for modem connection.

The "D1" Discrete I/O Expansion Card adds eight (8) discrete inputs, software selectable, for 125V dc or 12-48V dc nominal, and four relay grade outputs, two Form A and two Form C.

The "F1" Serial Fiber Expansion Card adds four (4) serial ST fiber ports 800-850nm. Point-to-point and multidrop are software selectable.



OrionMX S1 Serial Expansion Card



OrionMX D1 I/O Expansion Card



OrionMX F1 Serial Fiber Expansion Card

All card combinations are permitted, including all the same cards, making possible up to 16 additional serial ports or up to an additional 32 DI / 16 DO. Cards can be replaced or added in the field.