

The Orion5r is a rugged, modular automation platform designed for harsh utility substation and process plant environments. With the appropriate software and hardware modules, the Orion5r can perform the following functions:

- **Substation Smart RTU**
- **Protective Relay Integration**
- **Alarm Annunciation**
- **Sequence of Events (SOE) Recording**
- **Distribution Automation**

The 2U 19-inch chassis supports up to seventeen user serial ports, 2 Ethernet TCP/IP ports, internal dial-up modem, IIRIG-B, and discrete inputs and outputs. Sixteen of the user ports can be ordered with RS-232, RS-422/485 or fiber optic connectors. Most importantly, the Orion5r contains no fans, no hard drives, and no moving parts.

Port and protocol configuration is completely flexible. The Orion5r is capable of using a different protocol for each port with any combination of master and slave protocols. Multi-dropped devices are supported when protocols and communication media allow. Each port uses hardware buffers for independent high-speed data serial communications.

Configuration is facilitated by the simple drag-and-drop interface of the NovaTech Communications Director (NCD). NCD pre-packages IED protocol information, allowing the user to focus on the project rather than protocols and IEDs. Users can configure the system without connecting to the IEDs, enabling configuration both offline and outside of the substation.

Separate polling groups can be configured to adjust update times on a per point basis. Unsolicited responses from IEDs are also accepted.

Over 50 math and text manipulation functions can be applied to any data point, and user logic simulation software provides offline troubleshooting.

State of the art onboard diagnostics allow the user to view port communications, data values, and communication statistics. These tools provide a clear definition of device and point status.



Orion5r Front and Rear View

Expansion Cards

Serial

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

Communication:

- ENET:** Ethernet 10/100 BaseT
- MDM:** Internal dial-up modem
- 2ENET:** Dual Ethernet 10/100BaseT

SCADA Protocols

- Betac/Getac
- Conitel - 300/20x0
- CDC-1
- DNP3.0 – Serial and IP
- Harris 5000
- L&G 8979
- Modbus – Serial and TCP
- REDAC 70H
- TejasV

Other Protocols

- FTP
- HTTP
- PPP
- SNMP
- SNTp
- telnet
- XML

Specialty:

- IB:** IIRIG-B

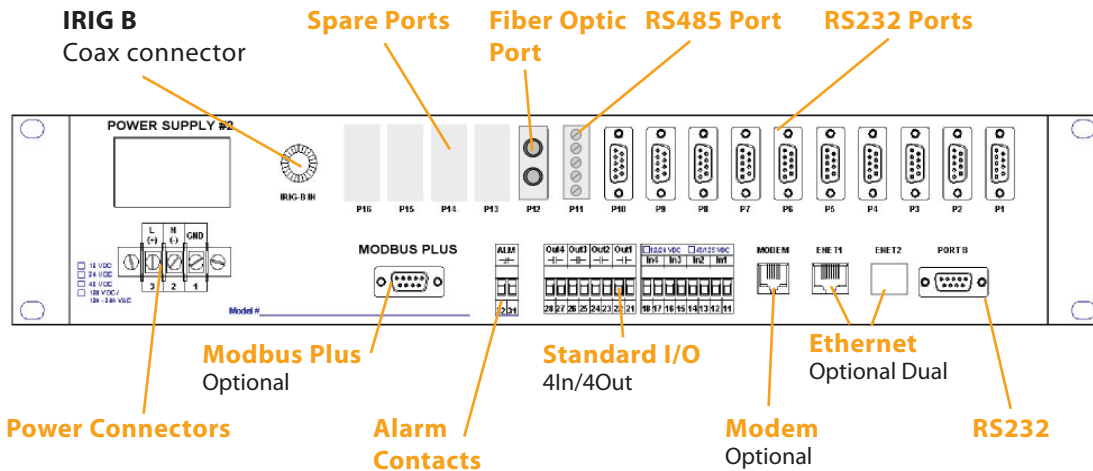
IED Protocols

- ABB DPU
- Allen Bradley DF1
- Areva KITZ
- Areva Optimho
- Basler DFPR
- DNP3.0 Serial and IP
- GE DLP
- GE Moisture Meter
- GridSense PAC
- IEC 870-5-103
- 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

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Specifications

Surge Withstand

Tested to ANSI C37.90.1 Fast Transient (2002) and C37.90.2 RFI (1995)

Environmental

Temperature, operating -40° C to +70° C
Humidity, operating 5 to 95% non-condensing

Indication LEDs

Power LED
Alarm LED
TX / RX LED

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 ST Multimode
Fiber Optic w/IRIG-B V-Pin Multimode
Bit Card RJ11 (Female)
Ethernet RJ45 (Female)
Modem RJ11 (Female)
I/O Terminals Phoenix type, #12-24AWG
Power Terminal 3-position barrier strip, #10 stud

IRIG-B

Input Modulated or Unmodulated
Output (on serial ports) Unmodulated

Processor

CPU 586 class
Speed 100MHz
DRAM 32MB
Flash 32MB

Performance/Capabilities

IED/SCADA points 5,000; typical
Refresh Rate < 2 sec; typical

Communications

Serial 1200bps - 115kbps
Ethernet Single 10BaseT
Dual 100BaseT
Protocols Bit or byte
Upgrades Via file transfer

Data Archiving & Storage

Standard Memory 24MB

Internal Modem

Type Dial-up; v.34
Speed 33.6kbps

Digital Inputs

Quantity 4 Std (Expandable)
Input Range 12-150 V dc
Optically Isolated

Digital Outputs

Quantity 4 Std (Expandable)
Contact Ratings 10A MOV Protected

Alarm Output

Type Form A (default)
Contact Ratings 10A MOV Protected

Power Supplies

Input Voltage 12 V dc (+/- 20%)
24 V dc (+/- 20%)
48 V dc (+/- 20%)
125 V dc -120 V ac (+/- 20%)

Rating

7 Watts

Warranty

5 Year Limited

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