Orion X Digital KVM Switch

ENTERPRISE MATRIX SWITCH

Orion X Digital KVM Matrix Switch Family

- Fully featured digital KVM matrix switch for enterprise installations supporting 1080p, 1920x1200, 2K/HD, and 4096x2160@60Hz
- Enables instant HD and 4K UHD switching between computers and remote consoles
- Supports DVI, HDMI, DisplayPort, VGA, and SDI video, with USB-HID, USB2.0, USB3.0, analog or digital audio and serial support
- Software packages for on-screen display and Java enabled management, multi-screen control, switch cascading ,and SNMP/Syslog maintenance

Features and Benefits

- A series of modular port configurations of 48, 80, 160, 288 and 576 port chassis with CATx, fiber, mixed CATx and fiber, or coaxial I/O interfaces
- Dynamic port assignment for connected transmitter and receiver devices which come as 2, 4, 6 or 21-card modular chassis.
- Instant delay-free switching of devices with the same resolution, and visually lossless video quality with no frame dropping up to 4K/60Hz
- IP management control port and RS232 control supported by a comprehensive API for integration with media controllers
- Matrix-Grid automates the connection of multiple Orion X switches in a decentralised network, using either a CATx or fiber links
- Java based management tool for remote device configuration and management
- Intuitive OSD is presented on each user display for ease of use and simplified switching
- Allows mixing of different single-link video formats such as VGA, DVI, HDMI, DisplayPort and SDI with a video scaling option between VGA input and DVI output.
- Redundant power supply for added resilience, and rackmountable chassis
- Supports matrix redundancy for mission critical installations

Product Overview

The Orion X enterprise switching system delivers exceptionally crisp and clear video that is visually lossless on a platform that is used to establish connections between users and computing resources. A range of Orion XT transmitter and receiver devices with mixed signal formats facilitates I/O access to the switch, which automatically recognizes and configures each device when it is connected.

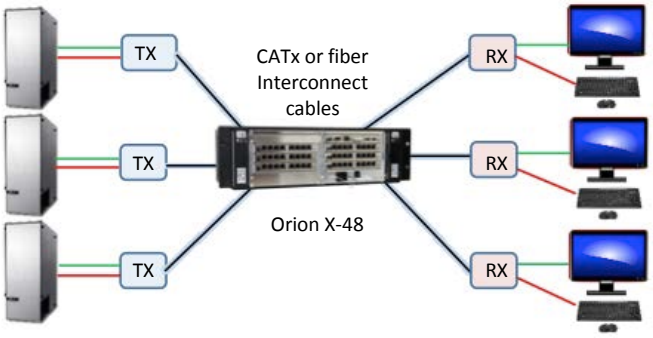
The Orion X switch and external extender devices can be all CATx, all fiber, or a mix of CATx and fiber depending on the switch port density. SDI/SD/HD/3G is also supported with a coaxial interface. A range of common user and PC peripherals can be switched and extended through the Orion X depending on the transmitter and receiver interfaces selected. The range includes full-speed and high-speed USB2.0 peripherals up to 480Mbps, USB3.0 up to 5Gbps, serial RS232/RS422, analog or balanced audio and digital audio. USB-HID for keyboard and mouse, USB touchscreen and other USB pointing devices is automatically supported.

Expanding an Orion X installation is not a problem. The included Matrix Grid software automates multi-matrix connections through CATx or fiber tie-lines or fiber grid lines. In this way, more I/O ports can be added to an existing system and remote users and resources can be connected back to the central system.

Applications

The Orion X is suitable for any application requiring digital KVM matrix support with both single or mixed video interface formats and the integration of different peripheral devices.

Common applications include industrial control desk environment, broadcast studios, outside broadcast vans, concert and theatre venues, AV distribution, medical imaging and other industrial/military applications.



Standard Orion X configuration

Video interfaces supported The Orion X provides a switching and management function as it receives and transmits digitized signals between the connected transmitter and receiver devices. The video signals switched through the Orion X include the following;

- VGA up to 1920x1200@60Hz (via DVI-I interface)
- DVI-D single-link and DVI-D dual-link up to 1080p, 1920x1200 and 2048x1152, 2K/HD
- HDMI video with embedded audio up to 1080p, 1920x1200 and 2048x1152, 2K HD
- DisplayPort video with embedded audio up to 4096x2160@30Hz (2K/4K) and 4096x2160@60Hz (4K/60)
- SDI SD/HD/3G of 720p/50/60, 1080i/50/60 and 1080p/50/60

Peripheral interfaces supported The following peripherals signals are supported and switched through the Orion X switch

- USB-HID for keyboard, mouse, touchscreen, and other pointing devices
- USB2.0 up to 480Mbps
- USB3.0 up to 5Gbps
- Analog audio and balanced audio
- Digital audio
- Serial RS-232 and RS-422 up to 115,200 baud
- PS2 keyboard and mouse

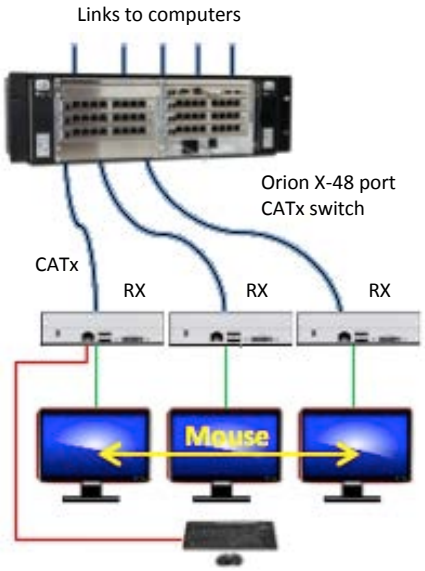
Models available The Orion X switch is comes in five different chassis sizes. The same range of management and I/O cards fits all chassis. The management card has network, serial USB-HID and local video ports. The hot-swappable I/O cards come in 8-port modules with individual SFP slots for CATx, fiber or coaxial interfaces. Each I/O port can be configured as an input or output port, making it possible to mix different link cable formats as an installation evolves. In summary, the modularity of the Orion X switching system makes it possible to configure a KVM or video switching matrix using any mix of video interface as well as USB-HID, USB2.0, USB3.0 and audio peripherals. These multi-format interface cards are connected to the Orion X using CATx, fiber or coaxial extension with serial or network integration of external media controllers.

Operation, Management and Control There are several industry standard methods for managing and controlling the Orion X switch. Inband hot-key keyboard switching is the standard access method, and an intuitive on-screen display can be viewed from any workstation console. For management control, the Java GUI tool is used for configuration and security settings, and system maintenance access. The Orion X switch can also be controlled through an external media controller, using the Orion API for integration via either TCP-IP or serial interface. SNMP and Syslog monitoring comes as standard with the Orion X switch.

SDI devices can be direct connected to the SDI I/O ports on the switch, or converted to CATx/fiber interface and extended at distances up to 10Km. To support SDI and USB3.0 applications, SFP's can be added to the universal card slots and self-configured as either input or output ports.

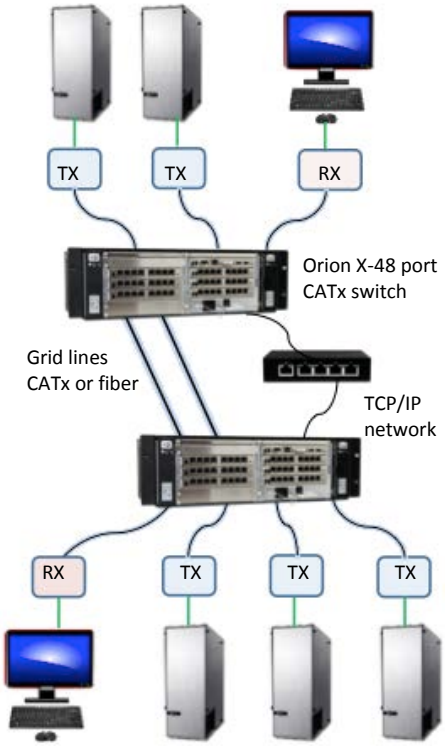
Methods of operation The Orion X is normally configured as a single head KVM matrix switch with multiple I/O ports. Non-blocking access is the default selection for all users to all connected PC's. The management software facilitates priority access rights settings and assigning PC's as full access, video access or no access to regular users. Video sharing between users is also allowed.
The parallel stacking operation features two Orion X switches linked via the network RJ45 ports. Switching commands issued on the primary switch are replicated and both switches switch in tandem. The parallel operation can also be used as a redundant path for user access to all resources. For all configurations, the switching command mode is activated by keyboard hot-keys that provide direct OSD access at any user monitor.

Multi screen control The MSC feature enables a single USB keyboard and mouse to control 2, 3 or 4 adjacent PC's, By moving the mouse to the vertical edge of the monitor, a user can pass the mouse cursor to the next monitor and simultaneously activate switching to the next PC. The monitors can be arranged side-by-side or in a grid pattern.



One keyboard and mouse controlling 3 computers

Matrix grid operation To expand the number of I/O ports, to locate two or more Orion X switches in different buildings, or to implement a structured redundancy, the matrix grid can be arranged using a number of different cabling topologies, for example, a ring setup, a hub-and-spoke setup or a fully connected setup using multiple grid lines. The grid lines, using either CATx or fiber optic cable links between I/O cards, interconnect the Orion X switches to build the matrix grid. One full KVM session can be connected on each grid line and the data flow can be bidirectional. For users requiring multiple simultaneous cross-switch sessions, the fiber grid card supports up to 8 simultaneous user sessions on a single 1Gbps fiber link. The matrix grid can be configured using either the OSD or Java tool.



Structure of a matrix grid network

Virtual CPU and Virtual Console The Virtual CPU provides a simplified and convenient method of switching several users to the same CPU simultaneously, by assigning the real users to a virtual console. When changing the selected CPU, the real users connected to a virtual console will simultaneously receive the same video signal. The virtual console function updates changed permissions to the real users via the virtual console.

Specifications

Dimensions (W x D x H) and weight	48 port chassis 19" x 5.3" x 9.1" 483 x 133 x 230 mm Weight: 19.6lb, 8.9Kg	80 port chassis 19" x 7.0" x 9.1" 483 x 178 x 230 mm Weight:24.5lb, 11.1Kg
	160 port chassis 19" x 15.8" x 12" 483 x 400 x 330 mm Weight: 60lb, 26.3Kg	288 port chassis 19" x 22.8" x 12" 483 x 578 x 330 mm Weight:76.2lb, 34.6Kg
	576 port chassis 17.4" x 43.6" x 17.1" 483 x 1108 x 435 mm Weight:178.2lb, 81Kg	
Chassis rack space	48 port: 3U 80 port: 4U 160 port: 9U 288 port: 13U 576 port: 25U	
Power	48, 80 port chassis 100-240V, 50/60Hz, 5A max 48 ports max 94W 80 ports max 99W I/O board max 13 W	160 port chassis 100-240V, 50/60Hz, 9A max 160 ports max 188W I/O board max 13 W
	288 port chassis 100-240V, 50/60Hz, 12A max 288 ports max 202W I/O board max 13 W	576 port chassis 100-240V, 50/60Hz, 29A max 576 ports max 300W I/O board max 13 W
Link cable	CATx: 460ft (140 meters) solid core UTP/STP, wired to EIA/TIA 568-B, AWG24, 1000Base-T Fiber optic 1.25Gbps: Multimode 62.5µm, 650ft (200 meters) Multimode 50µm, 1,300ft (400 meters) Multimode 50µm OM3, 3,280ft (1,000 meters) Singlemode 9µm, 32,800ft (10Km) Fiber optic 3.125Gbps: Multimode 62.5µm, 325ft (100 meters) Multimode 50µm, 650ft (200 meters) Multimode 50µm OM3, 1,640ft (500 meters) Singlemode 9µm, 16,400ft (5Km) Coaxial: 0.360Gbps bandwidth 1,312ft , 400m 1.485Gbps bandwidth, 460ft (140m) 2.970Gbps bandwidth, 395ft (120m)	

Specifications (continued…)

Indicator LED's	Standard LED's (all cards): CATx and fiber link (2): Initialization and connection status CPU Card (2): Registration and operation Matrix grid card (2): port status LAN (2): Network connection and data traffic PSU(2): AC, DC, Temperature Fans (3): Operating, Error, Hot swap
Connectors	CATx ports: 8×RJ45 Fiber ports: 8×fiber SFP Type LC duplex fiber Coaxial ports: 8× HD-BNC connector, Mini coaxial cable AWG18, RG6, 75Ω, 0.360Gbps, SD-SDI, SMPTE 259M 1.485Gbps, SD-SDI, SMPTE 292M 2.97Gbps, 3G-SDI DVI controller card: 1×DVI-I, 1×DB9 serial, 1×RJ45 TCP/IP, 2×USB-HID HDMI controller card: 1×HDMI, 2xRJ45 TCP/IP, 2×USB-HID, 1×RJ11 serial, 1×Mini BNC Genlock, 1×SD Slot Matrix grid card: 2×fiber LC duplex
Environment	Operating temp: 41°F – 113°F (5°C – 45°C) Storage temp: -13°F – 140°F (-25°C – 60°C) Rel. humidity: max 80% non-condensing
Noise emission	48 port chassis: max 58dBA per fan 80 port chassis: max 46dBA per fan 160 port chassis: max 65dBA per fan 288 port chassis: max 65dBA per fan 576 port chassis: max 65dBA per fan
Approvals	FCC Class A Part 15, IEC,EN, UL, WEEE, RoHS/RoHS2

System software The Orion X switch includes full software for switch management, switching control, CPU and user naming, password and access control and a matrix view showing all active connections. Operation of the Orion X switch is primarily through the OSD windows at each user station, and the java tool which is accessible through the RJ45 network port. For additional software including SNMP, Syslog and API for integration with external media controllers, please contact Rose Electronics.

Orion X chassis models

Orion X 48 port KVM switch with controller card, CATx, 3U

Orion X 48 port KVM switch with controller card, fiber and SDI, 3U

Orion X 80 port KVM switch with controller card, CATx, 4U

Orion X 80 port KVM switch, CATx, fiber, and SDI, 4U

Each Orion X switch must have a controller card pre-installed. The controller card can support DVI or HDMI for the local monitor connection and the card is specified at the time of ordering.

In addition to USB-HID, serial RS232 and TCP-IP ports, the HDMI controller card has a mini BNC Genlock port supporting frame sync for SDI connections.

Orion X chassis models (continued)

Orion X 160 port KVM switch, CATx, 9U

Orion X 160 port KVM switch, CATx, Fiber and SDI, 9U

Since so many variations of the Orion X product are available, not all chassis models are listed. Please contact Rose for more information.

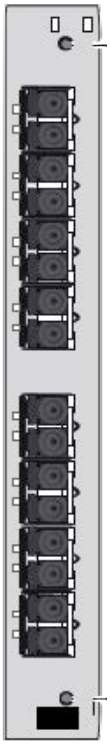
Orion X chassis models (continued)

Orion X 288 port KVM switch, CATx, 13U

Orion X 288 port KVM switch, CATx, Fiber, SDI, 13U

Orion X control cards

CATx 8 port I/O card



SM fiber 8 port I/O card

Coax (SDI) 8 port I/O card

DVI control card

HDMI control card

SM fiber grid card

Part numbers

Orion X chassis	
OXS-CH048-00	Orion-X 48 Port Switch Frame with Control Board, 1 power supply, without I/O Cards
OXS-CH080-00	Orion-X 80 Port Switch Frame with Control Board, 1 power supply, without I/O Cards
OXS-CH160-00	Orion-X 160 Port Switch Frame with Control Board, 2 power supplies, without I/O Cards
OXS-CH288-00	Orion-X 288 Port Switch Frame with Control Board, 2 power supplies, without I/O Cards
OXS-CH576-00	Orion-X 576 Port Switch Frame with 2 Control Boards, 2 power supplies, without I/O Cards
OXS-CH576-00S	Orion-X 576 Port Switch Frame with 2 Control Boards, 2 power supplies, without I/O Cards . Symmetric Chassis (2 x 288 ports, 288 Inputs/288 Outputs)
SWP-RBS-OXS-160	Redundant PS Card for 160 port chassis
SWP-RBS-OXS-288	Redundant PS Card for 288 port chassis
SWP-RBS-OXS-576	Redundant PS Card for 576 port chassis

Orion X Controller Cards and special application cards	
OXS-OXC-CNTRL	Orion X controller card. DVI, USB-HID, RS232-DB9, RJ45 (TCP/IP)
OXS-OXC-CNTRL2	Orion X controller card. HDMI, USB-HID, RJ12 (RS232), RJ45 (TCP/IP), Mini BNC Genlock
OXC-08-TP	Orion X I/O board, 8 ports, CATx
OXS-08-GBIC/8FS	Orion X I/O board, 8 ports, SM duplex fiber
OXS-08-GBIC/8FS-3.125	Orion X I/O board, 8 ports, SM duplex fiber 3.125Gbps
OXC-16-SDI	Orion X I/O board, 8 ports with 16 BNC connectors
OXC-08-GRD-F10	Orion X fiber optic grid card, single mode 10G duplex fiber, supports 8 grid lines