

# Orion XC Digital KVM Switch

KVM MATRIX SWITCH



- ▶ Fully featured digital KVM matrix switch for small and mid-sized 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 compact 1U or 2U chassis available with fixed port configurations of 8, 16, 32, 48, 64 or 80 ports, and 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 XC 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 DVI, HDMI, and DisplayPort with a video scaling option between VGA input and DVI output.
- Optional redundant power supply for added resilience, and rackmountable chassis
- Supports matrix redundancy for mission critical installations

## Product Overview

The Orion XC 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.

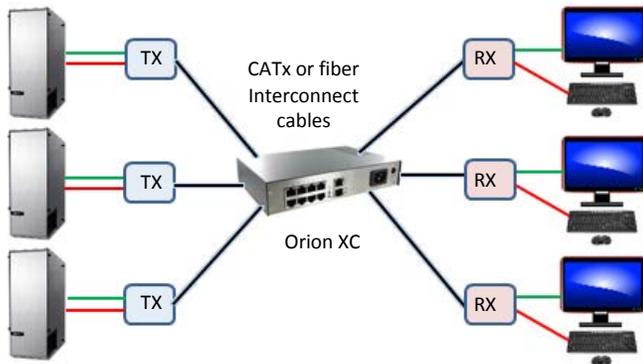
The Orion XC switch and external extender devices can be all CATx, all fiber, or a mix of CATx and fiber depending on the switch port density. SDI/SD/HD/3G is also supported with a coaxial interface. A range of common user and PC peripherals can be switched and extended through the Orion XC depending 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 XC installation is not a problem. The included Matrix Grid software automates multi-matrix connections through CATx or fiber tie-lines. In this way, more I/O ports can be added to an existing system or remote users and resources can be connected back to the central system.

## Applications

The Orion XC is suitable for any application requiring digital KVM matrix support with either 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 XC configuration

**Video interfaces supported** The Orion XC 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 XC 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
- HDMI video with embedded audio up to 1080p, 1920x1200, and 2048x1152
- HDMI 2.0 video with embedded audio up to 3840x2160 @ 60 (4K60)
- DisplayPort 1.1 video with embedded audio up to 4096x2160@30Hz (4K30)
- DisplayPort 1.2 video with embedded audio up to 4096x2160@60Hz (4K60)
- SDI SD/HD/3G of 720p/50/60, 1080i/50/60 and 1080p/50/60

For more information, consult the Orion Xtender data sheet, which details the transmitter and receiver interfaces available.

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

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

**Models available** The Orion XC switch is available as a range of 1U and 2U chassis with a fixed port configuration. It also comes as 8-port cards which insert into an Orion Xtender 6-bay or 21-bay chassis.

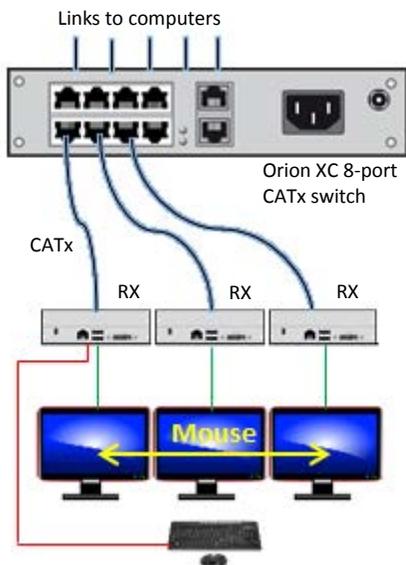
The available link interface formats are CATx, single-mode fiber with 1G (1.25Gbps) or 2.5G (3.125Gbps) high speed SFPs, or Universal ports which can support either SDI or USB 3.0.

There are various arrangements of interface ports with all CATx, all Fiber, all Universal, or mixed versions in the 64-port and 80-port switches.

**Operation, Management and Control** There are several industry standard methods for managing and controlling the Orion XC 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 XC 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 XC switch.

**Methods of operation** The Orion XC is frequently configured as a single head KVM matrix switch with up to 80 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 XC 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.

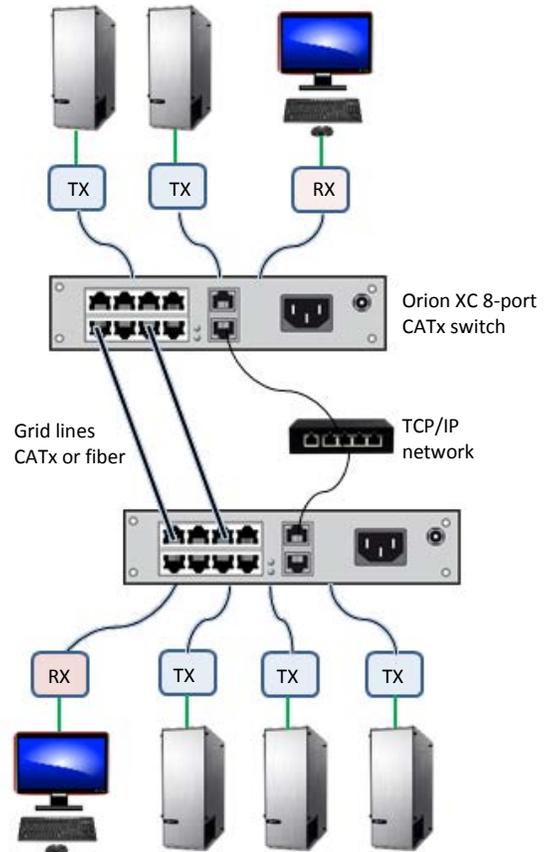
**Multi Screen control** The MSC feature enables a single USB keyboard and mouse to control 2, 3 or 4 adjacent PC's. By moving the mouse to the vertical edge of the monitor, a user can pass the mouse cursor to the next monitor and simultaneously activate switching to the next PC. The monitors can be 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 XC 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, interconnect the Orion XC switches to build the matrix grid. One full KVM session can be connected on each grid line and the data flow can be bidirectional. 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

<b>Dimensions (W x D x H) and weight</b>	8 port chassis 8.7" x 5.7" x 1.8" 220 x 146 x 45 mm Weight: 1.9lb, 0.9Kg	16 port chassis 17.4" x 17.1" x 1.8" 443 x 435 x 45 mm Weight: 10.8lb, 4.9Kg
	32 port chassis 17.4" x 17.1" x 1.8" 443 x 435 x 45 mm Weight: 11.0lb, 5.0Kg	48 port chassis 17.4" x 17.1" x 1.8" 443 x 435 x 45 mm Weight: 11.2lb, 5.1Kg
	64 port chassis 17.4" x 17.1" x 3.5" 443 x 435 x 90 mm Weight: 18.1lb, 8.2Kg	80 port chassis 17.4" x 17.1" x 3.5" 443 x 435 x 90 mm Weight: 18.5lb, 8.4Kg
	48C16F port chassis 17.4" x 17.1" x 3.5" 443 x 435 x 90 mm Weight: 18.1lb, 8.2Kg	48C32F port chassis 17.4" x 17.1" x 3.5" 443 x 435 x 90 mm Weight: 18.5lb, 8.4Kg
	48C32U port chassis 17.4" x 17.1" x 3.5" 443 x 435 x 90 mm Weight: 18.5lb, 8.4Kg	
<b>Chassis rack space</b>	1U high: 8, 16, 32, 48 port switches 2U high: 64 and 80 port switches	
<b>Power</b>	8 port chassis 100-240V, 50/60Hz, 0.7A, Max 13W	16, 32, 48 port chassis 100-240V, 50/60Hz, 1.4A 16 port max 40W 32 port max 65W 48 port max 90W
	64, 80 port chassis 100-240V, 50/60Hz, 2.3A 64 port max 105W 80 port max 125W	48/16, 48/32 port chassis 100-240V, 50/60Hz, 2.3A 48/16 port max 105W 48/32 port max 125W
	6 card chassis 2xPSU 100-240V, 50/60Hz	21 card chassis 2xPSU 100-240V, 50/60Hz
<b>Link cable</b>	CATx: 460ft (140 meters) solid core UTP/STP, wired to EIA/TIA 568-B, AWG24, 1000Base-T Fiber optic 1G SFP (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 2.5G (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: 0.360Gbp bandwidth 1,312ft, 400m 1.485Gbps bandwidth, 460ft (140m) 2.970Gbps bandwidth, 395ft (120m)	

## Specifications (continued...)

<b>Indicator LED's</b>	Standard LED's (all cards): CATx and fiber link (2): Initialization and connection status Internal CPU (2): Registration and operation LAN (2): Network connection and data traffic PSU(2): Operating, On/Off Fans (2): Operating/Error
<b>Connectors</b>	CATx ports: 8, 16, 32, 48, 64, 80 x RJ45 Fiber ports: 8, 16, 32, 48, 64, 80 Fiber SFP Type LC duplex fiber connector Network: 1 x RJ45, 100Base-T, EIA/TIA 568-B for full duplex operation RS232 Serial: 1 x RJ45, speeds up to 115.2KBaud, 8, one, none Coaxial: Mini coaxial cable AWG18, RG6, 75Ω, HD-BNC connector 0.360Gbps, SD-SDI, SMPTE 259M 1.485Gbps, SD-SDI, SMPTE 292M 2.97Gbps, 3G-SDI
<b>Environment</b>	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
<b>Noise emission</b>	16/32/48 port chassis: max 42 dBA per fan 64/80 port chassis: max 52dBA per fan
<b>Approvals</b>	FCC Class A Part 15, IEC,EN, UL, WEEE, RoHS/RoHS2

**System software** The Orion XC 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 XC 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.

### REAR VIEW OF 1U and 2U CHASSIS



Fig. 18 - Orion XC, 1U height, back panel PSU connectors



Fig. 19, Orion XC, 2U height, back panel PSU connectors

# Orion XC chassis models

## CATX PORTS



Fig. 1 - Orion XC, 8 port KVM switch, CATx, 1U



Fig. 2 - Orion XC, 16 port KVM switch, CATx, 1U



Fig. 3 - Orion XC, 32 port KVM switch, CATx, 1U



Fig. 4 - Orion XC, 48 port KVM switch, CATx, 1U



Fig. 5 - Orion XC, 64 port KVM switch, CATx, 2U



Fig. 6 - Orion XC, 80 port KVM switch, Fiber, 2U

## FIBER PORTS



Fig. 7 - Orion XC, 8 port KVM switch, Fiber, 1U

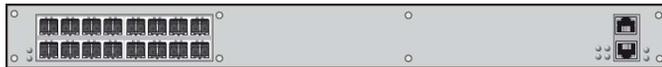


Fig. 8 - Orion XC, 16 port KVM switch, Fiber, 1U



Fig. 9 - Orion XC, 32 port KVM switch, Fiber, 1U



Fig. 10 - Orion XC, 48 port KVM switch, Fiber, 1U



Fig. 11 - Orion XC, 64 port KVM switch, Fiber, 2U

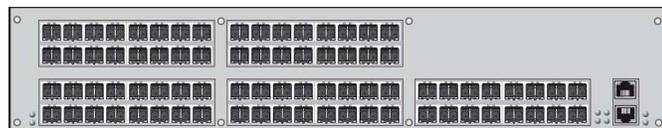


Fig. 12 - Orion XC, 80 port KVM switch, CATx, 2U

## UNIVERSAL PORTS



Fig. 13 - Orion XC, 8 port KVM switch, Fiber and BNC, 1U



Fig. 14 - Orion XC, 16 port KVM switch, Fiber and BNC, 1U



Fig. 15 - Orion XC, 32 port KVM switch, Fiber and BNC, 1U



Fig. 16 - Orion XC, 48 port KVM switch, Fiber and BNC, 1U

## MIXED PORTS



Fig. 17 - Orion XC, 64 port KVM switch, 48 x CATx, 16 x Fiber, 2U



Fig. 18 - Orion XC, 80 port KVM switch, 48 x CATx, 32 x Fiber, 2U



Fig. 19 - Orion XC, 64 port KVM switch, 48 x CATx, 16 x Universal, 2U

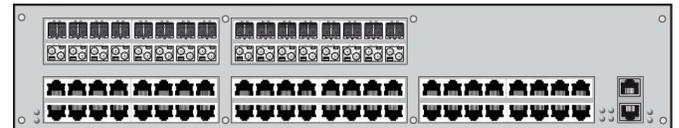


Fig. 20 - Orion XC, 80 port KVM switch, 48 x CATx, 32 x Universal, 2U



Fig. 21 - Orion XC, 64 port KVM switch, 48 x Fiber, 16 x Universal, 2U

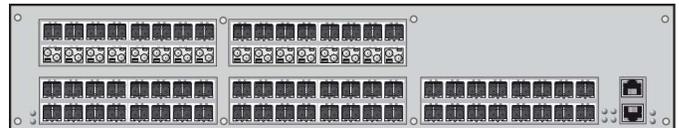


Fig. 22 - Orion XC, 80 port KVM switch, 48 x Fiber, 32 x Universal, 2U

## CARDS



Fig. 23 - Orion XC, 8 port KVM switch, CATx, 1U



Fig. 24 - Orion XC, 8 port KVM switch, Fiber, 1U



Fig. 25 - Orion XC, 8 port KVM switch, Universal, 1U

## Part numbers

Orion XC Switch — CATX PORTS		
OXS-XC008-TP	Fig. 1	Orion XC, 8 port matrix switch, CATx, with IEC power and redundant +5V power jack, 1U
OXS-XC016-TP	Fig. 2	Orion XC, 16 port matrix switch, redundant PSU, CATx, 1U
OXS-XC032-TP	Fig. 3	Orion XC, 32 port matrix switch, redundant PSU, CATx, 1U
OXS-XC048-TP	Fig. 4	Orion XC, 48 port matrix switch, redundant PSU, CATx, 1U
OXS-XC064-TP	Fig. 5	Orion XC, 64 port matrix switch, redundant PSU, CATx, 2U
OXS-XC080-TP	Fig. 6	Orion XC, 80 port matrix switch, redundant PSU, CATx, 2U

Orion XC Switch — FIBER PORTS		
OXS-XC008-FS	Fig. 7	Orion XC, 8 port matrix switch, 1G Fiber SM, with IEC power and redundant +5V power jack, 1U
OXS-XC016-FS	Fig. 8	Orion XC, 16 port matrix switch, redundant PSU, 1G Fiber SM, 1U
OXS-XC032-FS	Fig. 9	Orion XC, 32 port matrix switch, redundant PSU, 1G Fiber SM, 1U
OXS-XC048-FS	Fig. 10	Orion XC, 48 port matrix switch, redundant PSU, 1G Fiber SM, 1U
OXS-XC064-FS	Fig. 11	Orion XC, 64 port matrix switch, redundant PSU, 1G Fiber SM, 2U
OXS-XC080-FS	Fig. 12	Orion XC, 80 port matrix switch, redundant PSU, 1G Fiber SM, 2U
OXS-XC008-F3	Fig. 7	Orion XC, 8 port matrix switch, 2.5G Fiber SM, with IEC power and redundant +5V power jack, 1U
OXS-XC016-F3	Fig. 8	Orion XC, 16 port matrix switch, redundant PSU, 2.5G Fiber SM, 1U
OXS-XC032-F3	Fig. 9	Orion XC, 32 port matrix switch, redundant PSU, 2.5G Fiber SM, 1U
OXS-XC048-F3	Fig. 10	Orion XC, 48 port matrix switch, redundant PSU, 2.5G Fiber SM, 1U
OXS-XC064-F3	Fig. 11	Orion XC, 64 port matrix switch, redundant PSU, 2.5G Fiber SM, 2U
OXS-XC080-F3	Fig. 12	Orion XC, 80 port matrix switch, redundant PSU, 2.5G Fiber SM, 2U

Orion XC Switch — UNIVERSAL PORTS		
OXS-XC008-UN	Fig. 13	Orion XC, 8 port matrix switch, Universal Ports, with IEC power and redundant +5V power jack, 1U
OXS-XC016-UN	Fig. 14	Orion XC, 16 port matrix switch, redundant PSU, Universal Ports, 1U
OXS-XC032-UN	Fig. 15	Orion XC, 32 port matrix switch, redundant PSU, Universal Ports, 1U
OXS-XC048-UN	Fig. 16	Orion XC, 48 port matrix switch, redundant PSU, Universal Ports, 1U

Orion XC Switch — MIXED CATX + FIBER PORTS		
OXS-XC48TP16FS	Fig. 17	Orion XC, 64 port matrix switch, redundant PSU, 48 x CATx, 16 x 1G Fiber SM, 2U
OXS-XC48TP32FS	Fig. 18	Orion XC, 80 port matrix switch, redundant PSU, 48 x CATx, 32 x 1G Fiber SM, 2U
OXS-XC48TP16F3	Fig. 17	Orion XC, 64 port matrix switch, redundant PSU, 48 x CATx, 16 x 2.5G Fiber SM, 2U
OXS-XC48TP32F3	Fig. 18	Orion XC, 80 port matrix switch, redundant PSU, 48 x CATx, 32 x 2.5G Fiber SM, 2U

Orion XC Switch — MIXED CATX + UNIVERSAL PORTS		
OXS-XC48TP16UN	Fig. 19	Orion XC, 64 port matrix switch, redundant PSU, 48 x CATx, 16 x Universal Ports, 2U
OXS-XC48TP32UN	Fig. 20	Orion XC, 80 port matrix switch, redundant PSU, 48 x CATx, 32 x Universal Ports, 2U

Orion XC Switch — MIXED FIBER + UNIVERSAL PORTS		
OXS-XC48FS16UN	Fig. 21	Orion XC, 64 port matrix switch, redundant PSU, 48 x 1G Fiber SM, 16 x Universal Ports, 2U
OXS-XC48FS32UN	Fig. 22	Orion XC, 80 port matrix switch, redundant PSU, 48 x 1G Fiber SM, 32 x Universal Ports, 2U

Orion XC Switch — CARDS for insertion into 6-bay or 21-bay Orion XTender chassis		
OXS-XC008-TP/IRK	Fig. 23	Orion XC, 8 ports (card version), CATx
OXS-XC008-FS/IRK	Fig. 24	Orion XC, 8 ports (card version), 1G Fiber SM
OXS-XC008-F3/IRK	Fig. 24	Orion XC, 8 ports (card version), 2.5G Fiber SM
OXS-XC008-UN/IRK	Fig. 25	Orion XC, 8 ports (card version), Universal Ports

**WWW.ROSE.COM** ▪ **sales@rose.com** ▪ **(800) 333-9343**

Rose Electronics ▪ 10707 Stancliff Road ▪ Houston, Texas 77099  
 Rose USA (281) 933-7673 ▪ Rose Europe +49 (0) 2454 969442  
 Rose Asia +65 6324 2322 ▪ Rose Australia +61 (0) 421 247083

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