Orion XTender – Operating Modes
(Addendum to the Orion XTender User Manual)

System Overview
Orion XTenders can be configured as point-to-point extension devices using either CATx (up to 140 meters) or fiber optic cable (up to 10Km) as a link cable. Optionally, these same extension devices can also be self-configured as Transmit (TX) and Receive (RX) devices when connected to an Orion Digital KVM Matrix switch.
The video interfaces supported on these devices are:

- VGA (DVI-I) single-link
- DVI-D single-link and 2K dual-link
- HDMI single-link and 2K dual-link
- DisplayPort single link, 2K dual-link, 4K/30Hz and 4K/60Hz
- SDI (SD-SDI, HD-SDI, 3G-SDI)

When planning a system installation, these devices will normally have the same video interface at each end (ie, DVI In/Out or HDMI In/Out). For system design and configuration flexibility, it is possible to mix different single-link versions of these extenders, for example, VGA-In and DVI-Out, or DVI-In and HDMI-Out.
This is only possible when the video format is single-link. For example, it is not possible to mix an HDMI-In (single-link) with a DisplayPort-Out (4K link).

Orion XTenders with USB-HID
Orion XTenders can be configured in multiple different ways using a series of "main cards" and "option cards" installed in 2-card, 4-card, 6-card and 21-card chassis. The "main cards" are the video interface cards and by default, each "main card" comes with USB-HID (USB Keyboard and USB Mouse) support, however, the SDI card does not include any USB-HID ports.

Orion XTender Option Cards
The "option cards" are used to support various peripheral devices such as additional keyboard and mice, audio, RS232/RS422 serial, USB2.0 (full-speed and high-speed) and USB3.0
With the exception of the USB2.0 high-speed and USB3.0, each of the other "option cards" has to be configured together with a host "main card". The peripheral data signal shares the same link cable (CATx or fiber) as the video and USB-HID signals from the "main card".

Mixing CATx and Fiber Optic Cables.
It is possible that a mix of CATx and fiber optic cables my be required within a system, for example, if some existing cables have to be utilized, or if an extension system is running between different buildings in a campus or community environment.
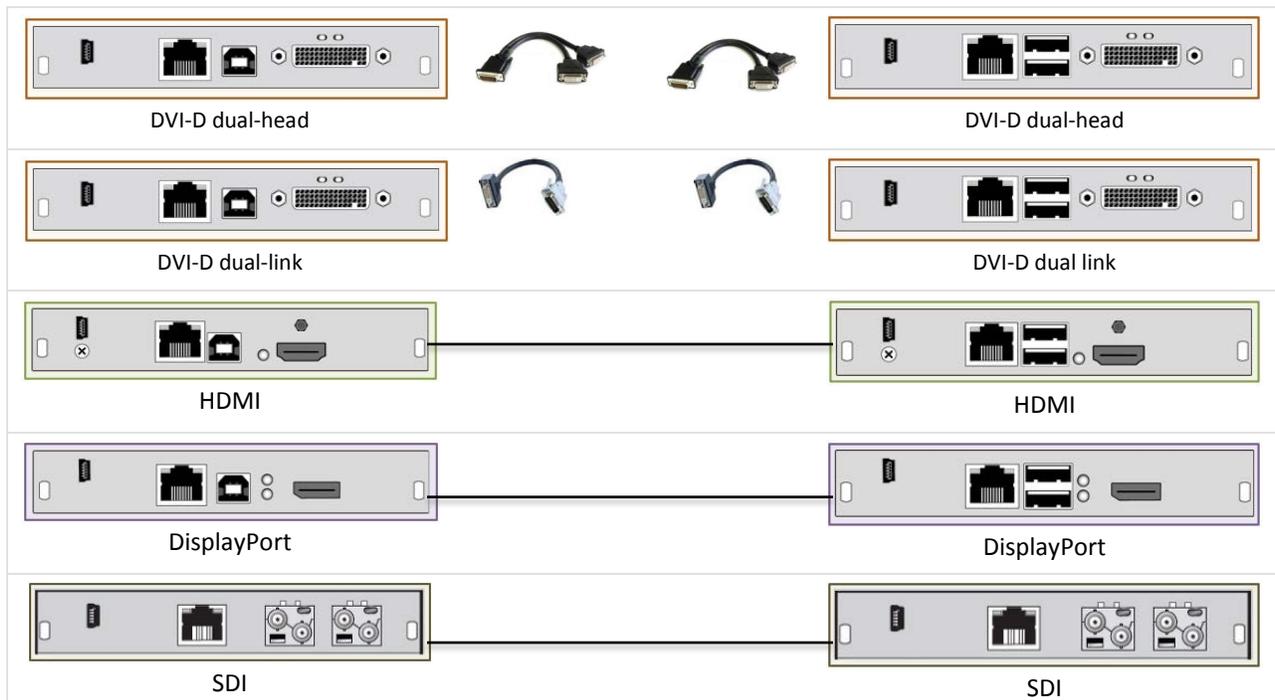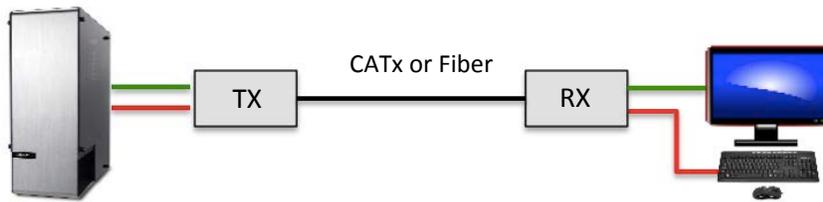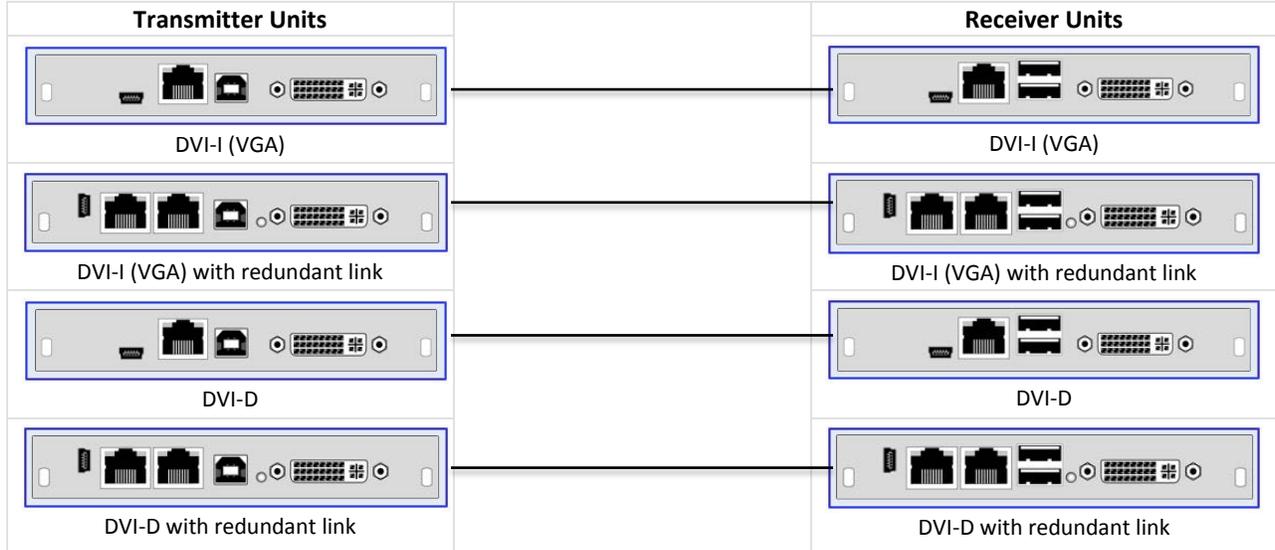The Orion product group supports a mix of different link cable types, for example, CATx-In and fiber-Out or fiber-In and CATx-Out. For point-to-point extension requirements, the Orion Cross Repeater product is used to interface between the different cable types. For Orion KVM switching requirements, the Orion KVM switch chassis can directly support a mix of CATx and fiber cable interface modules

When configuring an Orion XTender or Orion KVM switching system using the available "main and option cards", there are some simple rules to follow to ensure that the overall requirements are clearly defined and the various different interfaces are found to be compatible. Several examples are shown in the following pages.
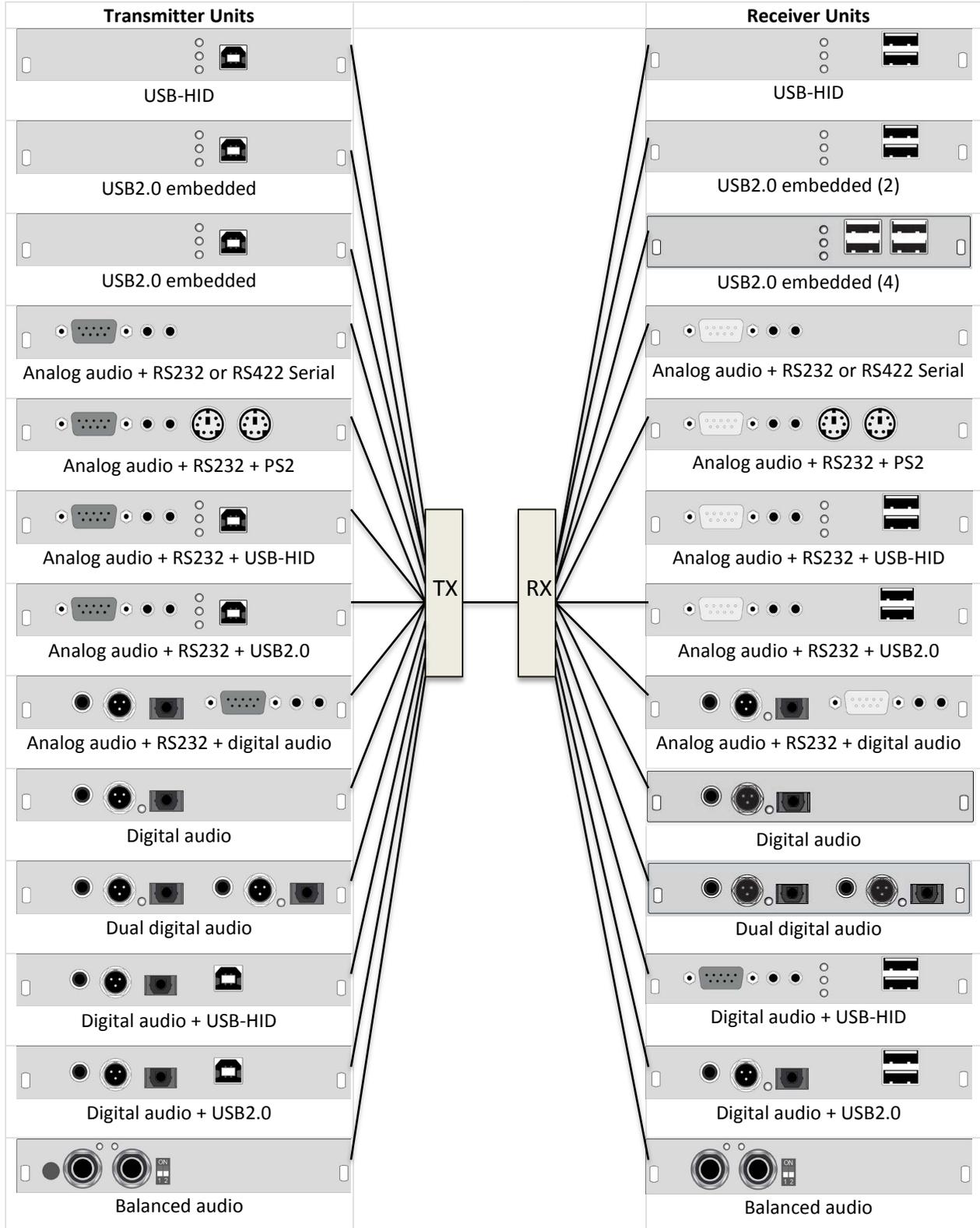
Orion XTender main cards, showing single port and redundant port options. The redundant port option is available for all the "main cards" however, only 2 models are shown below.
Note: CATx connectors are shown. These connectors can be CATx or Duplex LC Fiber Optic

Orion XTender Main Cards

Transmitter Units	Receiver Units
DVI-I (VGA)	DVI-I (VGA)
DVI-I (VGA) with redundant link	DVI-I (VGA) with redundant link
DVI-D	DVI-D
DVI-D with redundant link	DVI-D with redundant link

CATx or Fiber

TX   RX

DVI-D dual-head	DVI-D dual-head
DVI-D dual-link	DVI-D dual link
HDMI	HDMI
DisplayPort	DisplayPort
SDI	SDI

Orion XTender Option Cards

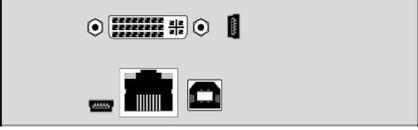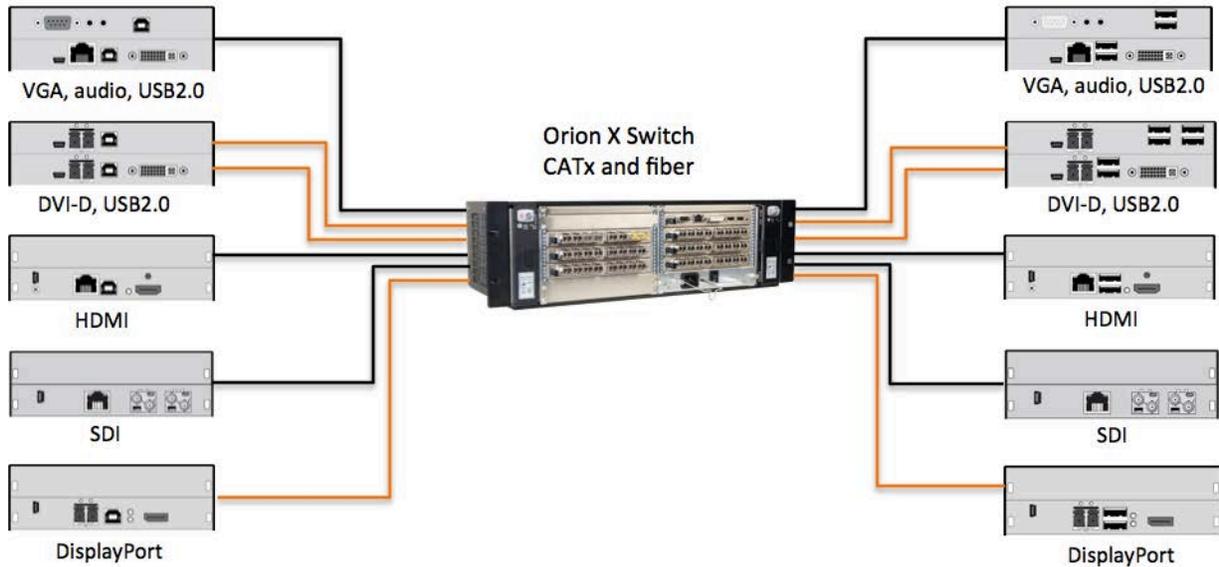| Transmitter Units		Receiver Units
USB-HID		USB-HID
USB2.0 embedded		USB2.0 embedded (2)
USB2.0 embedded		USB2.0 embedded (4)
Analog audio + RS232 or RS422 Serial		Analog audio + RS232 or RS422 Serial
Analog audio + RS232 + PS2		Analog audio + RS232 + PS2
Analog audio + RS232 + USB-HID	TX RX	Analog audio + RS232 + USB-HID
Analog audio + RS232 + USB2.0		Analog audio + RS232 + USB2.0
Analog audio + RS232 + digital audio		Analog audio + RS232 + digital audio
Digital audio		Digital audio
Dual digital audio		Dual digital audio
Digital audio + USB-HID		Digital audio + USB-HID
Digital audio + USB2.0		Digital audio + USB2.0
Balanced audio		Balanced audio

Note: Some card configurations are not displayed here. Please contact Rose Electronics for further details

Orion XTender Special Application Cards

| Transmitter Units		Receiver Units
	VGA (DVI-I) Transmitter with full video scaling capability. Receiver unit must be DVI-D, HDMI or DisplayPort. CATx or fiber	
	USB2.0 high-speed, 480Mbps over CATx or fiber	
	USB3.0 super-speed 5Gbps over multimode fiber	
	Monitoring module with SNMP (TCP/IP + RS232)	
	Push button interface connector for displaying OSD on a receiver unit for a user with no keyboard	

Orion Digital KVM Switching System

The Orion digital KVM switching system supports a mix of CATx and fiber link cables. Orion XTender Transmitter and Receiver units supporting different video interfaces (VGA, DVI-D, dual-link, HDMI, DisplayPort 2K/4K and SDI) are connected to the Orion KVM switch. Single-link video interfaces are interchangeable, for example, VGA input to DVI-D output, or HDMI Input to DisplayPort output.

Orion XTender Redundant Port Configuration
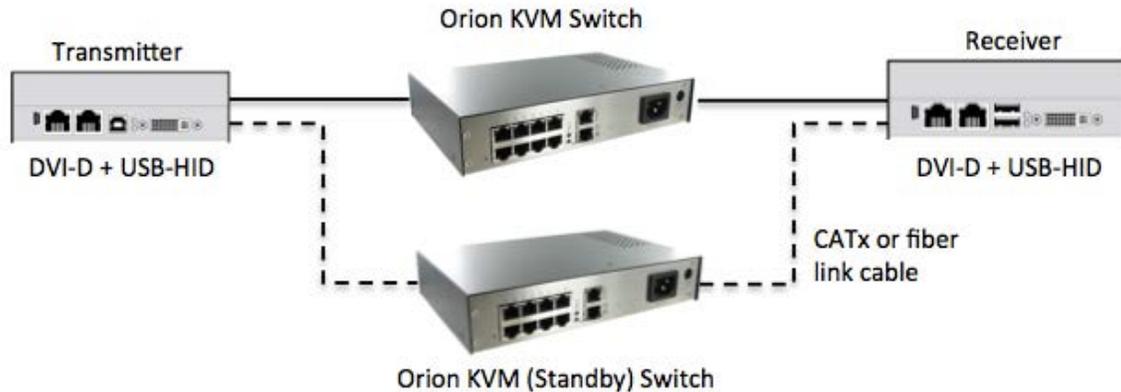
Orion XTender models with the redundant port configuration include the VGA, DVI-D, HDMI, DisplayPort and SDI video interfaces. The redundant port link cable can be either CATx or duplex LC fiber. When connected via a standby Orion KVM switch, the redundant port XTenders provide a backup link in the event of unavailability of the primary Orion KVM switch.
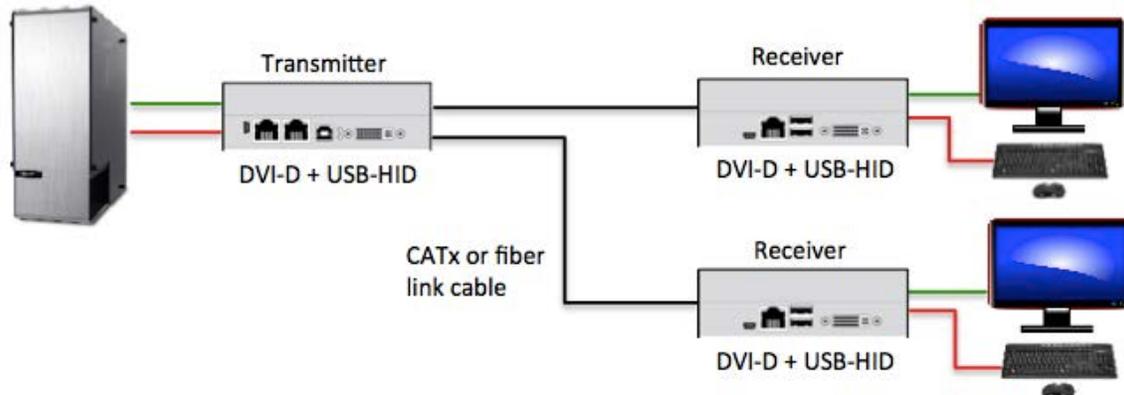
The Orion redundant port XTender product splits the video, USB-HID and peripheral data signals into two output signals. These signals can be connected using either CATx or duplex LC fiber cable to two receiver units. This enables two remote users at different locations to access the same host PC. Contention for control of the host PC is governed by keyboard inactivity timeout.

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

WWW.ROSE.COM